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### THE MEDICAL ASPECT OF DUODENAL ULCER.<sup>1</sup>

By SINCLAIR GILLIES, M.A. (New Zealand),  
M.D. (London), D.P.H. (Cantab.).

Honorary Physician, Royal Prince Alfred Hospital,  
Camperdown, Sydney.

THE problem of duodenal ulcer is of interest on account of our ignorance regarding its causation, the difference of opinion prevailing regarding treatment and on account of the light that has been thrown on it by work done during the past few years.

The divergent views held by physicians and surgeons can be traced to two main causes.

The physician sees and treats many patients whose condition is slight and many in whom the diagnosis rests on symptoms of hyperchlorhydria and in whom the presence of ulcer is not confirmed by X-rays or by operative findings. The surgeon on the other hand sees many whose condition is more severe.

In neither case is it easy to trace the after history of one's failures. The physician's failures seek the surgeon, while the patients whose symp-

toms recur after operation, return to the physician rather than the surgeon. Both physician and surgeon can show large groups of apparently cured patients, while both point to many failures in their colleague's practice.

It is desirable therefore to review our knowledge and seek the factors which should decide whether a given patient should be treated by medical or surgical means.

Sufferers from duodenal ulcer seek the physician either on account of hæmorrhage or for varying symptoms of indigestion. Hæmorrhage may take the form of hæmatemesis, melæna or both.

#### Acute Hæmatemesis.

Acute hæmatemesis presents a very alarming picture, but statistics collected from many sources prove that the mortality of patients with this complication is under 5%, a fact which must be borne in mind when considering the relative value of varying forms of treatment and the question of operative interference.

It must also be remembered that the diagnosis of the cause of hæmorrhage is often obscure, that operation and *post mortem* examination not infrequently fail to disclose the source of bleeding or show it to be due to causes other than ulcer. For these reasons treatment of hæmatemesis is relegated

<sup>1</sup> Read at a meeting of the New South Wales Branch of the British Medical Association on September 25, 1924.

to the physician with in the majority of cases excellent results.

Careful and minute inquiry into previous symptoms pointing to duodenal or gastric ulcer is essential in dealing with these patients, as from time to time one meets cases in which in spite of treatment hæmorrhage recurs at the end of twenty-four to forty-eight hours to be again repeated in another forty-eight hours. Patients with recurring hæmorrhage give rise to grave anxiety and in my experience not infrequently die. It is in this class of case that operation may be considered and undertaken provided the history shows a reasonable probability of ulcer.

In the past operations in these conditions have failed partly on account of mistaken diagnosis, partly from the grave anæmia present and partly from the incompleteness of the operation, the surgeon having contented himself with manual examination of the outside of the stomach or with doing a gastro-enterostomy, the rationale of which in such a condition is hard to discern. With modern technique and the advantage of transfusion more may be attempted, but operation should be reserved for patients in regard to whose condition the diagnosis of ulcer is reasonably certain, when recurrence has occurred in spite of efficient medical treatment and when the surgeon is an expert in such work. Unless the operator is capable of undertaking radical measures, operation had better be left alone.

#### Medical Treatment.

Medical treatment of acute hæmorrhage aims at encouraging clotting in the eroded vessel and insuring that the clot shall not be digested or ejected by increased pressure before it has had time to organize.

The essentials of treatment are absolute rest in bed, the withholding of all food and fluids by mouth for four days after the cessation of the hæmorrhage, the administration of saline solution and glucose solution or possibly nutrient enemata *per rectum* and most important of all the patient should be kept continuously under the influence of morphine till danger of hæmorrhage has passed, that is till the fourth day. It is useless to put a patient under the influence of morphine and then to let him come out even for a short period. This short period may be long enough to allow blood pressure to rise sufficiently to dislodge the clot and re-start hæmorrhage. There is no need to give atropine in combination with morphine, as morphine inhibits gastric secretion and atropine tends to mask the evidence that the patient is sufficiently under the influence of the former drug. Of other measures "Hæmostatic Serum" is of value in some cases, but its use as a routine may evoke unpleasant symptoms. Of the value of calcium salts, ice bag and adrenalin I am doubtful, nor can I bring myself as yet to wash out the stomach in such conditions.

After four days begin to feed with whey, albumin water, milk and cream, at the same time commencing the use of drugs to decrease the pyloric

spasm and hypersecretion of hydrochloric acid as will be described in discussing the routine treatment of ulcer. Do not starve too long, especially when hæmorrhage has been severe. In these cases transfusion is sometimes of value.

In weighing the advisability of surgical interference remember that 95% of patients recover, that patients rarely die in the first severe hæmorrhage, that ulcer is not the only cause of hæmorrhage, that if hæmorrhage is recurrent it is useless to wait till the patient is moribund before invoking surgical aid.

#### Duodenal Ulcer.

##### Symptoms.

The majority of sufferers from duodenal ulcer seek advice for symptoms of indigestion of a characteristic type, pain or discomfort occurring from two to three hours after food, relieved by food or alkalies. Pain may awaken the patient during the night and may be accompanied or be replaced by belching of wind and this may at times be accompanied by acid eructation. These symptoms vary much in severity, sometimes being unnoticed till attention is directed to them. They last for weeks or months, disappear and recur at varying intervals more frequently in the winter and temporary relief is often quickly obtained by a few days' holiday.

Accompanying these symptoms may be tenderness below the right costal margin with guarding of the right rectus or pain may be located in the right anterior lumbar region on a level with the umbilicus.

These symptoms occur in the majority of cases, a goodly company! But by no means are all patients presenting the above symptoms, suffering from duodenal ulcer. Many are simply suffering from hyperchlorhydria due to a variety of causes, comprising among others undue irritability of the nervous centre governing secretion, mental stress, excessive meat eating or indulgence in meat extracts, excess in tobacco, gout, reflex irritation from such conditions as chronic appendicitis or cholecystitis.

All patients do not present the above symptoms. Latency is common, irregular indigestion occurs, vomiting may be present in association with spasm or obstruction, while recurring attacks of faintness from concealed hæmorrhage may be the reason for seeking medical advice.

##### Diagnosis.

Rigidity and tenderness of the upper part of the right rectus is strongly suggestive of ulcer as is the detection of occult blood in the fæces.

Differentiation between simple hyperchlorhydria and ulcer is often difficult or impossible without special examination.

An opaque meal is of the greatest value in diagnosis. Deformity of the duodenal cap proves that pathological changes have taken or are taking place in this region.

Unfortunately we cannot always decide by screen examination whether the deformity is due to active ulceration or to scarring or to adhesions the result of past trouble. Absence of deformity on the other



hand does not absolutely exclude the presence of ulcer.

Spasm of the duodenum or pylorus points to active ulceration. The rate of emptying of the stomach varies with the presence or absence of pyloric spasm. As a rule the time of emptying is delayed.

In practice diagnosis is frequently made from symptoms alone, reliance being placed on the evidence of hunger pain accompanied by local tenderness or hæmorrhage, but in the absence of deformity of the duodenal cap it is open to cavil.

In case of doubt valuable evidence may be obtained from the fractional test meal. The character of the curves of total chlorides and of total and free acid discloses the rate of secretion of hydrochloric acid and the presence or not of pyloric spasm.

Work done in this connexion by Crohn, Reiss, Bolton and others has greatly advanced our knowledge on normal and pathological gastric secretion.

#### *The Gastric Secretion and Duodenal Ulcer.*

Before discussing treatment it will be well to recall some facts established by recent experimental work regarding the physiology and pathology of gastric digestion in relation to duodenal ulcer.

There is abundant evidence that duodenal ulcer is almost always accompanied by hyperacidity of the gastric juices and that hyperacidity plays a prominent if not decisive part in preventing healing.

This hyperacidity is due to two factors: (i.) Actual hypersecretion, (ii.) deficient neutralization owing to pyloric spasm.

Experiment shows that hydrochloric acid is secreted in a concentration of 0.4% to 0.5%, not 0.2% as is usually believed. Fractional test meals show that the percentage of free hydrochloric acid in the stomach at any given period of digestion is determined in the first place by the amount of fluid present and secondly that when acidity reaches 0.2% its further increase is prevented by regurgitation from the duodenum of alkaline fluid which neutralizes the excess of acid.

In duodenal ulcer spasm takes place either at the pylorus or more probably at the site of the ulcer, preventing this regurgitant neutralization and so hyperacidity results.

Pyloric spasm explains hyperacidity in many cases, but actual hypersecretion occurs in some instances.

A point that must be remembered and that is often forgotten in treatment, is the influence of the variety of food on the quality and quantity of secretion. Meat extracts, soups, broths and meat excite the flow of copious highly acid juice, while eggs, fish, carbohydrates, milk, fruit and vegetables call forth a small amount of slightly acid secretion. Cream and fats inhibit the flow.

Animal experiments show that when increased reflex irritability of the pylorus exists, spasm may be excited by certain foods which do not in themselves normally cause increased secretion. The in-

duced spasm increases acidity by preventing neutralization.

#### *Treatment.*

The essential points in treating duodenal ulcer are two. In the first place secretion of hyperacid gastric juice and the occurrence of pyloric spasm must be prevented. Meanwhile the excess of acid present must be neutralized. Not only must acidity be reduced, but it must be kept permanently low. Otherwise relapse will occur sooner or later. Reduce acidity and healing will occur, maintain low acidity and healing will persist.

In the second place an important fact to remember is that cessation of discomfort does not connote completion of healing. Pain ceases long before an ulcer heals and treatment must be persisted in for months before complete healing can be said to have occurred.

Failure to grasp these facts is at the root of the failure to cure and keep cured most patients with duodenal ulcer.

Details of treatment include rest in bed in acute cases after hæmorrhage until a hæmoglobin test indicates that loss of blood has been made good. When this has occurred, nothing is gained by a prolonged stay in bed. Healing will proceed when the patient is up and about, provided he sticks rigidly to his diet and medicine and avoids unduly arduous occupation. A holiday in congenial surroundings is of undoubted value in decreasing hyperacidity and in promoting healing.

Food should comprise milk, cream, bread, sago, tapioca, ground rice, maizena, mashed potatoes and all starchy foods. Eggs, raw or lightly boiled, are given early, fruit juices and the pulp of soft non-acid fruits such as pears or apples may be given, but due attention must be paid to the possibility of producing pyloric spasm in certain individuals. Salt should be restricted.

After two or three months fish and vegetables are added and this diet should be persisted in for six months or longer, the length of time depending on the chronicity and size of the ulcer as determined by X-ray examination. Later fowl or rabbit may be allowed occasionally and perhaps mutton once a week. The longer a patient can be persuaded to continue a diet of starch, fruit, vegetables, eggs, cheese and fish, the better his prospect of a permanent cure. The more definite the history of recurrence, the more important the permanence of the above régime.

Soups and meat extracts should be permanently banished and alcohol and tobacco should be reduced to a minimum.

Of drugs the most important are belladonna, bismuth, magnesium carbonate and sodium bicarbonate.

A mixture I find very efficacious, consists of: Tincture of belladonna, 0.6 cubic centimetre (ten minims); carbonate of bismuth, four grammes (one drachm); carbonate of magnesia, 1.2 to 1.8 grammes (twenty to thirty grains); bicarbonate

of soda, 0.6 gramme (ten grains) and peppermint water to fifteen cubic centimetres (half an ounce). This mixture may be given at first four times in the twenty-four hours and later three times a day before food for several months. Belladonna acts both by decreasing the flow of gastric juice and by inhibiting the spasm which prevents the regurgitation of duodenal fluid. The carbonates of soda, magnesia and bismuth neutralize the excess of acid produced during digestion, the insoluble carbonates exerting their action over a long period.

When excessive acidity still persists, as shown by pain between meals, a powder containing equal parts of magnesia, calcium carbonate and sodium bicarbonate may be taken in sufficient doses to give relief.

The above treatment has proved efficacious in my experience, the essential point being persistence for a long period in both diet and drugs.

#### *Merits of Medical and Surgical Treatment.*

What are the merits of surgical as compared with medical treatment? Where do they overlap and what patients belong exclusively to each class?

I think that we are all agreed that the great majority of patients with hæmorrhage belong to the physician and that the surgical catastrophes and complications, rupture and secondary stenosis and also the patients whose condition has become very chronic and in whom medical treatment has failed, belong to the surgeon. To whom belong the large class in whom these complications have not occurred?

Some surgeons headed by Moynihan claim all patients with duodenal ulcers for operation. The offending ulcer is removed and all is well for a time. Others championed by Patterson treat all patients with ulcer by performing gastro-enterostomy. This method also has its successes and failures.

The rationale of success after gastro-enterostomy appears to be the fact that the operation secures a continuous regurgitation of alkaline fluid into the stomach and so neutralization of the acid juice.

The surgeon claims that at operation he frequently removes the cause, an inflamed appendix, or if the appendix has already gone, the gall bladder or other offender whose complicity in the crime is more than doubtful.

The physician on his side claims his share of success and asserts that spasm and acidity can be abolished without operation. He also points out that operation by no means always secures permanent relief.

In this connexion Dr. Sear's figures are significant. During the period in which he examined with X-rays three hundred and twenty patients with duodenal ulcer, he also submitted to examination eighty persons sent to him because of recurrence of symptoms after gastro-enterostomy.

In this connexion also the figures of David Forsyth are of the greatest interest. He has analysed a carefully recorded series of fifty-nine cases of

ulcer occurring among medical men, members of the Medical Sickness Annuity and Life Association, of which he is the Chief Medical Officer. Of these thirty-three underwent operation and twenty-nine were treated medically. His figures show that the result of surgical interference offered no advance on medical treatment as regards duration of invalidity and frequency of relapse.

There was no recurrence for ten years in 58% of those submitted to operation, as against 62% of those not so treated. Over half the patients had no recurrence under either form of treatment. Relapse occurred in 39% of twenty-three patients operated on after the first attack. Three patients or 9% died as the result of operation. There were no deaths in the non-operated series.

On the evidence the case for operation is not convincing, except for complications or after the failure of thorough and prolonged medical treatment.

Review of the literature and my own cases convinces me that the fault in the past on the part of the physician has been failure to treat patients with acute ulcers along sound lines sufficiently long to insure healing and failure to insist on a diet and mode of life which prevents recurrence of hyperchlorhydria, the precursor and abettor of ulcer.

On his side the surgeon has perhaps been prone to lay undue stress on the need for and result of operation and even more than the physician to neglect the necessity for care in diet to prevent relapse.

If the physician was more thorough in his treatment and after care, there would be less opportunity for his surgical colleague.

#### DUODENAL ULCER.<sup>1</sup>

By JOHN L. MCKELVEY, M.B., Ch.M. (Sydney),  
Honorary Surgeon, Royal Prince Alfred Hospital;  
Honorary Surgeon, Saint Vincent's Hospital,  
Sydney.

IN this discussion on duodenal ulcer I wish to present some aspects of the surgical treatment of this disease. It is probable that surgical treatment pure and simple is practised rarely, for most surgeons combine with the operative procedure some treatment by drugs and diet. It is, however, my aim to indicate some of the surgical methods which have been used in dealing with the problem of duodenal ulceration. Although ulcer of the duodenum has been recognized for about a century, its surgical treatment is of much more recent date. It is not certain who first described duodenal ulcer. Moynihan gives the credit to Travers who reported a fatal case of perforated ulcer in the *Medico-Chirurgical Transactions* of 1817, but in 1799 Mathew Baillie had figured in his "Morbidity Anatomy" a typical example of duodenal ulcer. It

<sup>1</sup> Read at a meeting of the New South Wales Branch of the British Medical Association on September 25, 1924.

was Abercrombie in 1836 who first noted the clinical fact that the pain appears two hours after taking food and consequently a diagnosis was possible from the symptoms. Until 1891 the treatment of the disease had been entirely medical, but in that year Codivilla inaugurated the surgical treatment and since then an avalanche of surgery has overwhelmed chronic ulcer of the duodenum. In spite of this the physicians have not abandoned their position without a struggle and it is by no means the unanimous opinion of the profession that even the chronic form of this disease requires surgical treatment. That an acute ulcer of the stomach or duodenum yields to purely medical treatment is admitted generally, but many surgeons of wide experience have grave doubts that medical treatment alone ever cures a chronic ulcer. The intermittence of the symptoms which is so characteristic of the disease, often leads to false conclusions as to cure and fatalities by perforation or hæmorrhage have been recorded in patients supposed to be cured. Unfortunately in this disease disappearance of symptoms does not mean disappearance of the ulcer. It may then be asked why the disappearance of the symptoms after surgical treatment should mean more than after medical treatment. The advocate of surgical treatment replies that the relief is much more likely to be permanent. Another advantage that the surgeon claims, is an exact knowledge of the condition he is treating. Notwithstanding the great advances in the diagnosis of abdominal lesions aided by chemical and radiographic methods many patients are found at operation to be suffering from other lesions than the ulcer, lesions such as disease of the gall bladder and appendix which are cured only by surgery. In doubtful cases operation may be the only method by which we can determine the real nature of the patient's ailment and by which we can be prevented from allaying the symptoms of early malignant disease by sedative drugs. That surgical treatment such as gastro-jejunostomy does cure duodenal ulcer is beyond doubt. Speaking of my own limited experience in those patients upon whom a short circuiting operation has been done for duodenal ulcer, I have found invariably when the abdomen has been opened for other lesions that the ulcer was healed.

Having determined upon surgical treatment we find open to us many methods each of which has or has had its advocates, for some of the methods have enjoyed but an ephemeral reputation and have passed into the limbo of discarded surgical technique. It is probable that the surgical procedures adopted for duodenal ulcer are approaching in numbers the methods of shortening the round ligaments of the uterus, but we feel confident that the latter will win the day. In the ætiology of duodenal ulcer there seem to be two main factors, local necrosis from infection, thrombosis or injury or all combined and hyperacidity of the gastric juice. Our treatment therefore aims at eliminating or modifying them. In the general application of the theory of distant infective foci as causal agents in diseases of obscure origin duodenal ulcer has not

escaped, so it behoves us to remove any septic foci in teeth, tonsils and so forth before operation. A special focus of infection may be in the appendix and this organ must be examined and treated. However much these distant foci assist in the production of the ulcer, their mere removal does not cure unless further surgical efforts are made to free the ulcer from contact with the hyperacid juice. Many operations have been devised for this purpose, nearly all being of the type of short circuiting; one class aims at uniting the stomach to the duodenum and the other the stomach to the jejunum. It is forty-three years since the first gastro-jejunostomy was done by Wölfler. It was of the anterior type and anti-peristaltic. It has been abandoned almost completely and replaced by modifications of von Hacker's posterior method which in its original form had a loop of jejunum about twenty centimetres long between the anastomosis and the duodeno-jejunal flexure. In the subsequent modifications the loop has been reduced to a minimum, as it probably assisted in producing one of the most distressing sequelæ of gastro-jejunostomy, namely a vicious circle or bilious vomiting. Although the operation of gastro-jejunostomy is comparatively simple, there are many points of importance to be observed. The opening must be large enough, at least five centimetres (two inches) long, it must be as near the greater curvature of the stomach as possible and the stomach must be stitched carefully to the opening in the transverse mesocolon. The last is essential to a successful issue, for if it be neglected all else is vain, for a loop of jejunum will be drawn through the opening and obstruction follow. It was once considered necessary to have the jejunum iso-peristaltic with the stomach, but it does not seem to make any difference whether it is iso-peristaltic or contra-peristaltic. The direction of the anastomotic opening is usually made parallel to the long axis of the stomach, but so great an authority as Moynihan makes it vertical. It says much for the toleration of the stomach that all these methods may be completely successful.

A much debated question is the use of clamps in the performance of the operation. I would like to point out how many brilliant surgeons anchor their technique by inventing an instrument for some operation, for once the particular instrument is catalogued with the inventor's name, he is from that time handcuffed to his instrument and his technique may be cribbed, cabined and confined in consequence. If the operation can be done with safety and comfort without a clamp, there is no reason for the use of a clamp. As regards the material used for suture there is no unanimity. Many surgeons still adhere to non-absorbable sutures such as silk or linen thread. This is not necessary and may add a danger to the operation. Fine chromacized catgut acts splendidly. Some surgeons use the three layer and some the two layer method. Abdominal surgery would lose nothing if all non-absorbable suture material and mechanical apparatus such as Murphy's button, were discarded. Excision of the redundant mucosa is done by some operators, but there seems little in its favour.



How does a gastro-jejunostomy act when it has been completed? Is the action mechanical in allowing a more rapid emptying of the stomach or chemical in neutralizing the acidity by bile reflux? I think, in both ways. It remains afterwards as a safety valve for neutralization and relief of pyloric spasm if this occurs. The mere performance of a gastro-enterostomy may not be the be-all and the end-all of the duodenal ulcer. Many and serious complications may arise from this simple procedure; one of the earliest to be recognized was regurgitant vomiting. This was more frequent after the original anterior method. Probably the long loop of jejunum between the duodeno-jejunal flexure and the anastomosis was in part responsible and to guard against it an anastomosis was made between the afferent and efferent loops of the jejunum. It occurred occasionally after the posterior method if a loop were left, but the no-loop operation has abolished it unless some obstruction occurs to the jejunum at or below the anastomosis when it will appear after any method. An equally distressing sequel is the gastro-jejunal or jejunal ulcer—new ulcers for old, according to Bland-Sutton. In this disastrous occurrence an ulcer forms at the anastomotic opening partially or completely encircling it and producing similar symptoms to the original ulcer often in an exaggerated degree. It may perforate into the pancreas in a chronic manner, when its situation close to the middle colic artery and superior mesenteric makes it dangerous to excise. I have met this ulcer several times. In one instance the ulcer had perforated, the silk stitch was attached at one end and the other end was floating free like a pennant into the abdominal cavity. More recently I have seen a chronic ulcer which had perforated into the pancreas again and in this instance the silk stitch was lying in the floor of the ulcer. It is to be expected that if the silk is not discharged into the lumen of the bowel, but remains exposed to the stomach juice, it acts as an infected undischarged foreign body does anywhere else in the body. However, the presence of the silk does not account for those ulcers occurring on the efferent loop some distance from the opening. Gastro-jejunal ulcers may adhere to and perforate the colon producing the distressing condition of gastro-colic fistula with its disgusting symptoms.

Is it necessary to do anything to the ulcer itself? It may be dealt with directly or indirectly. In the former it may be excised or infolded by a suture and in the latter the pylorus may be occluded. Some authorities like Sherren hold that excision of the ulcer is not necessary. Personally I never do it unless it has perforated into the gall bladder or liver. The fashion of excluding the pylorus has changed. Many were the methods of accomplishing this. They vary from temporary occlusion by a catgut suture to permanent occlusion by a band of *fascia lata* or the more savage method of a metal plate. The band of *fascia lata* could be placed over the ulcer, thus preventing a subsequent perforation. A much more radical operation is excision of the first part of the duodenum with the ulcer and the pyloric end of

the stomach. Many methods of gastro-duodenostomy have been devised such as those of Jaboulay, Kummell, Villard, Kocher, Finney, Heinecke and Mikulicz and Devine. Of these Finney's operation is practised most commonly. It seems to me that for its performance in duodenal ulcer it postulates a certain size and site of the ulcer.

Devine, of Melbourne, has introduced a method of gastro-jejunostomy in which he cuts through the pyloro-duodenal junction and closes the duodenal end, while the pyloric end is brought under the transverse colon and implanted on to the anterior surface of the duodenum. It apparently is not safe to rely on removal of the ulcer only for a cure, as some of the factors in the aetiology of the disease have been deleted and recurrence is probable. Of all these methods of dealing with duodenal ulcer, what recommendation can be made to a surgeon performing his maiden operation? First about his incision. It can be made through the upper part of the right rectus or the muscle may be pulled outwards. When the abdomen is opened, there is the search for the ulcer. It will be found in most cases on the first part of the duodenum about 1.25 to 2.5 centimetres (one-half to an inch) from the pylorus. It is usually single, but may be double, as in the romantically named "kissing ulcer." It is a definitely palpable lesion, can be pinched between the fingers and its edge feels like a coin in the tissues. If on the posterior surface, it can still be felt as a thickened, indented area with a dimple or crater into which the tip of the finger can be passed. The actual ulcer may be very small, a mere slit, but the indentation about it is always palpable. On the peritoneal surface over it there is a whitish area of thickened peritoneum in many cases resembling a corneal leucoma and if this area is rubbed, reddish points appear upon it (stippling). It is a safe suggestion that the ulcer itself be not excised, but at the most infolded with a stitch. Then let a no-loop gastro-jejunostomy be done with gut stitches and not silk or thread. As it is his first case, he may prefer to use clamps. After the completion of the anastomosis the appendix should be removed, if possible through the original incision, but if the appendix is adherent, a separate incision may be necessary. After dealing with the ulcer and any other lesion found, the surgeon has still an important part of his operation to perform, namely the closure of the wound. Let the exit from the abdominal cavity be neither hurried nor dramatic. Each layer should be stitched separately and the aponeurosis closed with interrupted mattress stitches. The sutures may be reinforced with fishing gut over an anchored dressing.

As regards the surgery of the complication, perforation demands immediate laparotomy with closure of the ulcer by suture if possible or by a patch of omentum. Beware of leaving the perforated ulcer to drain through a tube, for the patient may waste rapidly and succumb after some days; this happened to a patient of mine. Whether it is necessary to do a short circuiting operation at the time of the closure of the ulcer depends upon the patient's condition and the practice of the sur-



geon. I have operated on patients after a simple closure of a perforated ulcer and found the ulcer healed and in one case the silk suture was coiled beneath the peritoneum not communicating with the lumen.

During or immediately after a severe hæmorrhage operation is attended by grave danger, but when faced with a death from hæmorrhage a surgeon may be tempted to operate.

#### THE PRESENT POSITION IN THE DIAGNOSIS AND TREATMENT OF CHRONIC GASTRIC AND DUODENAL ULCER.<sup>1</sup>

By R. B. P. MONSON, M.D., Ch.M. (New Zealand),  
F.R.C.S. (Edin.),  
Honorary Assistant Surgeon, Lewisham  
Hospital, Sydney.

It is impossible to consider the question of duodenal ulcer apart from gastric ulcer because the ætiology, pathology, symptomatology and treatment are so correlated that in making a diagnosis one is forced to think of both and also to remember that not infrequently they may occur together.

There is a tendency amongst the rising generation of medical men to ignore the results of long clinical experience and acumen and to turn too easily to the facile diagnostic methods provided by the laboratory and X-rays. At the same time they fail to remember that though these methods have proved themselves valuable adjuncts in our modern work, they are by no means infallible. Permit me to remind you that the most valuable assets a doctor can have in the year 1924 are still the same as were available to the father of medicine, Hippocrates himself, namely shrewd and careful powers of observation, patience in history taking, a sense of touch and last but not least a logical mind to appreciate in their respective worth the facts elicited. I will endeavour to point out to you that, by taking a careful history of all patients with dyspepsia, a correct diagnosis can be made by the consultant or the general practitioner in 75% of cases, while in conjunction with the Rehfuß meal and X-rays a positive diagnosis can be made in 95%.

##### Chronic Gastric Ulcer.

Chronic gastric ulcers occur more often in males and in the fourth to sixth decades of life and there is frequently a history of some years of dyspepsia. During these years the patient has long attacks at long intervals which are entirely free of symptoms. Pain may be localized or radiate to the back to the left of the tenth dorsal vertebra and this boring pain is always suggestive of a posterior wall ulcer burrowing into the pancreas. The localized pain may be relieved by vomiting. If the ulcer is on the lesser curve near the cardiac end, vomiting appears in one-half to one and a half hours after food. Pain which appears immediately on food entering the stomach, is unlikely to be due to gastric ulcer. If the ulcer is near the pylorus pain appears in one and a half to two and a half hours

after food and it can be laid down as a general axiom that the longer the interval after eating before pain appears, the nearer the ulcer is to the pylorus and also the greater the relief by taking food. Indeed the juxta-pyloric ulcers produce hunger pain at night and cause symptoms clinically indistinguishable from duodenal ulcer.

Tenderness is nearly always present at one definite point on deep palpation, but may not be obtained in ulcers on the posterior wall of the stomach.

Vomiting according to Walton is nearly always present and gives relief and, where pyloric stenosis is present, it may be very copious. My own experience agrees rather with Moynihan's who says that in the absence of stenosis it is rarely present except in ulcers of the cardiac end of the stomach.

Muscular rigidity is obtained more or less often depending on the *tactus eruditus* of the observer. Its significance is that the ulceration has involved the peritoneum of the stomach and it is not generally present in ulcers of the posterior wall involving the pancreas.

Hæmatemesis is said to be present in 50% of cases according to Walton, but in my own experience it has been much less. On the other hand occult blood can be found in 100%, but I must confess I have seldom had tests undertaken on this account.

Hyperæsthesia is only present in acute and not in chronic ulcers.

Walton says that hyperacidity is always present, but Moynihan, on the contrary, says that hypochlorhydria is more common. The present opinion is that both these observers are more or less correct, as the work of Bolton<sup>(1)</sup> and Apperly<sup>(2)</sup> by the use of the Rehfuß meal, has thrown much light on this subject. This is a valuable test in regard to the tonicity of the pyloric muscle and its control of the alkaline reflux from the duodenum. Thus, although a test meal specimen may exhibit hypochlorhydria, nevertheless the amount of alkaline chlorides present may be ample proof that there is a hypersecretion of acid which has been known to reach even 1% to 1.2%. The nearer the ulcer is to the pylorus, the greater the acidity or the amount of alkaline chlorides will be.

Let me remind you that gastric ulcers may be multiple, in which case one is generally chronic and the others acute.

I do not mention the hypomotility of the stomach, as Dr. Sear has ably dealt with the radiological aspect; but as regards X-rays permit me to quote that shrewd and experienced observer James Sherren who says: "X-ray is a valuable means of investigation. It cannot, however, be too strongly insisted upon that the result must be considered in conjunction with other evidence. Neither from the positive nor negative standpoint should too much stress be laid upon its findings and it should never be allowed to influence against operation."

##### Duodenal Ulcer.

Let us now contrast duodenal ulcer with the above. It is at least three times more common

<sup>1</sup> Read at a meeting of the New South Wales Branch of the British Medical Association on September 25, 1924.

and occurs mostly in men about the third and fourth decades of life. Not infrequently there is a double ulcer, so-called "kissing ulcer," on the anterior and posterior wall. It may be complicated by gastric ulcer which is generally a secondary production. It results from the persistence of an acute ulcer, caused by the gastritis which is brought on by the duodenal ulcer. Periodicity of the attacks of pain is a very definite feature of duodenal ulcer and the winter is generally associated with a renewal of the pain. Pain may be very bad like a colic and is relieved by pressure and the taking of food or alkalies. It occurs two to three hours after food. Vomiting in the absence of stenosis is rarely present and then the vomitus is only small and acid. Tenderness on deep palpation is obtained at a definite point in the epigastrium to the right of the mid-line in ulcers of the anterior wall only and, if the peritoneum is involved, there may be rigidity of the right upper rectus.

Melæna is said to be common, but in my own experience, is only present in about 33% of cases. Occult blood can nearly always be demonstrated.

Hyperacidity and hypermotility are common to all cases and X-ray examination and the Rehfuess meal nearly always confirm the diagnosis. The patients are generally stout, well nourished men with a history of heavy smoking. On careful inquiry hunger pain at some period is complained of by nearly all patients. In penetrating ulcer of the posterior wall involving the pancreas a boring pain may be felt in the left scapular angle, while in ulcers penetrating the liver right supraclavicular pain has been observed.

#### Pitfalls in Diagnosis.

Cholelithiasis and cholecystitis occur most commonly in women, they follow pregnancy and the pain is frequently referred to the right scapular or right clavicular region. The pain has no definite relation to meals and no definite periodicity and it is always relieved by vomiting. Jaundice may occur, but so it may in ulcers involving the pancreas and producing a pancreatitis with pressure on the common duct. Cholelithiasis and cholecystitis occur but rarely in young men of the third and fourth decades, while they are not uncommon among middle-aged Jews. Chronic appendicitis is frequently associated with these conditions as in duodenal ulcer. X-ray examination for gall stones does not commonly yield a positive result.

Carcinoma, while almost unknown in duodenal ulcer, frequently supervenes on chronic gastric ulcer in the fifth and sixth decades of life. A carefully taken history will suggest it, by showing a loss in the periodicity of attacks and the failure of vomiting to relieve. The vomit becomes foul and contains blood, sarcinae and so forth. Though the acid content may be high, if there have been previous test meals, it will be seen to be falling. On the other hand if the pylorus is patent, acid may be absent. Apart from ulcer dyspepsia suddenly coming on late in life in a previously healthy person, should always rouse suspicions in regard to car-

cinoma. X-ray examination will generally reveal a filling defect.

Visceroptosis and allied conditions form the commonest trap for the unwary and clinically may simulate exactly gastric or duodenal ulcer. When a mobile ascending colon and caecum and particularly a cystico-colic ligament is present, there will be a direct drag on the mesentery. The maximum tension then falls on the lesser curvature near the pylorus or on the first part of the duodenum. Deformities of the duodenal cap may be present and these, bearing out the clinical signs and symptoms, will lead us to suppose we have a positive diagnosis. When in doubt always have the large bowel examined separately by X-rays.

Chronic appendicitis is frequently associated with hyperacidity and hypermotility apart from definite ulceration.

Renal calculus occasionally produces symptoms closely allied to duodenal ulcer, as it may even cause hyperacidity and hypermotility.

Occasionally there may no history of remissions in the attacks in gastric or duodenal ulcer and in such cases the ulcer is on the posterior wall and involving the pancreas.

#### Pathology.

Pathology has a direct bearing on the treatment and it is necessary to mention it briefly. I worked with Stoerk, the eminent professor of pathology in Vienna, who has been studying the pathology of the stomach for seven years. He has the first call on all stomachs in the *Allgemeines Krankenhaus*, a hospital of nearly five thousand beds, and he is able to secure them immediately the patients die and thus eliminate *post mortem* changes. Very briefly I mention his views:

"There are three types of glands present in the stomach, namely (i.) cardiac, (ii.) fundal, (iii.) pyloric." The function of the cardiac glands is unknown and, according to Stoerk, "they are an unimportant relic of comparative anatomy, producing neither acid nor ferments. The pyloric and pre-pyloric glands produce no acids, but ferments; while the fundal glands alone contain the acid-secreting parietal cells and a stomach producing no acid will not contain parietal cells." In examining the stomachs of young infants Stoerk found that even twenty-four hours after birth and once feeding had commenced, there could always be found microscopically some evidence of gastritis which, he said, was due to a disturbance of the peptic and antipeptic functions of the stomach. He says that a stomach with chronic gastritis can never completely regenerate itself, but that the loss of the functioning mucosa is compensated for by the hypersecretion of the remaining mucosa.

On microscopical section flat craters in the mucous membrane are seen. These indicate the old healed ulcers of gastritis and no mucosal folds are seen in the part of the stomach affected by gastritis which in an advanced stage may have the same symptoms as peptic ulcer. If the parietal cells are destroyed by the gastritis, there is a per-

manent loss of the secondary functions of the stomach or at any rate such loss may persist for some time until regeneration can occur. Where the parietal cells have all been destroyed we find in the fundus a pseudo-pyloric type of gland.

Adenoid tissue is present in the stomach as an infiltration by lymphoid cells at the fundal ends of the glands and also at the base of the glands between the tubules. This lymphoid tissue is present here because of the relation between the functions of the stomach and absorption. The stomach in new-born babes is free from lymphoid tissue. The amount of lymphoid tissue present depends on the physiological defensive reaction against the toxins absorbed from the cavity of the stomach. There are more ramifications in the glands of a stomach suffering from or regenerating from gastritis. At the base of the glands are lymphoid follicles which in gastritis contain a definite Fleming's germinative layer, thus indicating the defensive proliferation of adenoid tissue. In acute gastritis multiple ulcers are present. These are all of the same age and 99% of them will heal, but the other 1% may change into chronic peptic ulcers. Not infrequently duodenal and gastric ulcers occur together and I have had two such patients in my own practice and have seen a number of others abroad. In these the duodenal ulcer is always primary and has produced a secondary gastritis with milium ulcers. Briefly then a gastritis is the precursor of peptic ulcer, compensatory regeneration of the acid-forming glands occurs, so that to treat our patients scientifically we must remove the whole of the acid-bearing portion of the stomach.

#### Treatment.

As the present knowledge of the aetiology of peptic ulcer throws the onus on the acid-bearing portion of the stomach, the logical treatment seems to consist in the complete removal of the acid-forming area. This extreme surgical measure is now resorted to by many eminent gastric surgeons in both gastric and duodenal ulcers. Indeed one may say it is almost a routine in many of the great Austrian and German clinics. I can speak from personal experience of the well known Eiselsberg Clinic in Vienna and the Langenbeck and Bier Clinics in Berlin. Eiselsberg himself told me that his percentage of recurrences even in duodenal ulcer following gastro-enterostomy had been very high and that he had had many cases of jejunal ulcer, but as he was the pioneer of pyloric occlusion, I did not wonder at the latter. Following the introduction of partial gastrectomy by the Pólya method, his follow-up department reported as high as 90% of cures with complete disappearance of jejunal ulcer and at the same time a very low mortality. In this particular regard, permit me to refer you to the published record of another Viennese surgeon whose work I saw, Dr. Hans Finsterer.<sup>(3)</sup> He has performed four hundred and seven partial gastrectomies under local and infiltration anaesthesia with a mortality of 4.4% and in the last three and a half years one hundred and fifty-eight resections with three deaths.

Moynihan with whom I spent a month at Leeds last year, had just done two hundred resections for gastric ulcer by the Balfour-Pólya method without a death. I myself saw him operate on nearly thirty patients. From two he removed both gall bladder and appendix as well as the stomach and next day those two patients hardly differed in their condition from those who had been treated by simple appendectomy. He advocates partial gastrectomy for all gastric ulcers, while his routine treatment for duodenal ulcer is posterior gastro-enterostomy *plus* appendectomy. He maintains and rightly, that while medical treatment may be successful in duodenal ulcer, it never is in gastric ulcer. His follow-up department and his colleagues in the North of England bear out the wonderful success he claims.

Sherren and Walton with whom I worked for some months at the London Hospital, are not quite so dogmatic. While their treatment of duodenal ulcer agrees with Moynihan's, except that Walton does not perform appendectomy as a routine, their treatment of gastric ulcer varies according to the type of ulcer. For the small, free ulcer Walton is content with a wedge incision and Sherren with a cauter excision *plus* gastro-enterostomy. In all large and adherent ulcers they perform partial gastrectomy. Sherren<sup>(4)</sup> refers to the remarkable results of partial gastrectomy in chronic gastric ulcers, an operation he has performed increasingly for eleven years. He says that chronic duodenal ulcers, unless adherent to pancreas or liver, heal after gastro-enterostomy.

Paucet and Duval whose work I saw many times in Paris, favour pylorotomy for duodenal and pyloric ulcers and partial gastrectomy only for large gastric ulcers, while they perform gastro-enterostomy with a small stoma for the free type of gastric ulcer.

I have only seen W. J. Mayo operate, but the opinions of those at this clinic are almost kaleidoscopic, as they change their operation almost annually, so that one wonders if their results have been all that they have claimed in the past. Their latest "stunts" are to advise partial gastrectomy by Billroth I. again and in case of duodenal and pyloric ulcers a large flap gastro-duodenostomy.<sup>(5)</sup>

In the case of large adherent ulcers of the cardiac end both Mayo and Eiselsberg perform jejunostomy and feed the patient by the stoma for at least six months, while checking the process of healing by radiography. Such an ulcer will always heal within six to seven months and then the stoma may be closed.

What is the position of medical treatment? For duodenal ulcers it undoubtedly has an important place when no complication except hæmorrhage is present.

Bennett, the physician to Middlesex Hospital, sums up the position admirably. He says operation is indicated in all patients with chronic pyloric obstruction, all patients whose condition relapses after a course of medical treatment, all ulcers



adhering to surrounding structures, all patients with a history of many years, all patients with over six-hour retention, all patients whose economic position makes prolonged treatment bad.

In regard to our own patients I think we may generally be less drastic. Owing to our economic factors and our fine environment in the Australian States we do not see the same number of large caloused ulcers as are to be seen in the great cities abroad, but I am afraid that, with the rapid growth of our own city we shall not long retain this enviable position.

Personally, in duodenal ulcer I always perform posterior gastro-enterostomy *plus* inclusion of the ulcer if possible and appendicectomy. In all early uncomplicated cases I try a course of medical treatment first, namely large doses of bismuth carbonate and sodium bicarbonate with restriction of all meats and meat extracts and nicotine, as mentioned so ably by Dr. Gillies in his paper. If I cannot include the ulcer I generally suture omentum over it, as I would have you remember that perforation has occurred. Walton told me he had lost two patients in whom perforation had occurred after gastro-enterostomy, while they were still in hospital. The results I have had, extending over a decade, have been most satisfactory.

In regard to gastric ulcer I always excise the small ulcers of the anterior wall or lesser curvature and perform a posterior no-loop gastro-enterostomy, but in all other cases I am now a convert to a wide resection of the stomach.

Following operation one must insist in all cases on the patient continuing to carry out a careful régime, as regards diet and indulgence in alcohol and tobacco. Many surgeons have had bad results simply because they led their patients to believe that they had improved on Nature or at any rate had been returned *in statu quo ante*. The position today has, one may say, reached the pinnacle of surgical treatment and in the case of partial gastrectomy it is a great surgical triumph. To use a *more Hibernico* it is a great surgical failure, in that to cure disease of a small area of an important organ it is necessary to remove practically the whole of it. I feel sure that, though the triumph of today rests with the surgeon, that of the future may through the medium of the physiological chemist fall back into the hands of the physician.

In conclusion, permit me to apologize for this very brief summary I have given you and to say that if I have omitted many important aspects and details, it has been rendered necessary by the time at my disposal this evening.

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<sup>(1)</sup> Charles Bolton: "Diseases of the Stomach," *The British Medical Journal*, August 18, 1923, page 269.

<sup>(2)</sup> F. L. Apperly: "The Mechanism of Hyperchlorhydria," *THE MEDICAL JOURNAL OF AUSTRALIA*, January 13, 1923, page 33; "Achlorhydria: An Investigation into its Nature with Suggestions for its Treatment," *THE MEDICAL JOURNAL OF AUSTRALIA*, August 11, 1923, page 135.

<sup>(3)</sup> Hans Finsterer: "The Surgical Treatment of Ulcer of the Stomach and Duodenum," *Surgery, Gynecology and Obstetrics*, April, 1923, page 454.

<sup>(4)</sup> James Sherren: *The British Medical Journal*, March 15, 1924, page 472.

<sup>(5)</sup> W. J. Mayo: "Gastro-Duodenostomy: Its Indications," *Surgery, Gynecology and Obstetrics*, May 24, 1924, page 583.

#### BLOOD PRESSURE CHARTS AS AN AID TO DIAGNOSIS, PROGNOSIS AND TREATMENT IN ALBUMINURIA OF PREGNANCY AND ECLAMPSIA.<sup>1</sup>

By J. C. WINDEYER, M.B., Ch.M. (Sydney),  
M.R.C.S. (England), L.R.C.P. (London),  
*Lecturer in Obstetrics, University of Sydney; Honorary Surgeon, Royal Hospital for Women, Sydney.*

At the Royal Hospital for Women we have been taking the systolic blood pressure in patients with eclampsia and in some with albuminuria for many years. The estimations have been recorded each morning and evening in figures on the ordinary obstetric chart.

During the last year the blood pressure readings have been taken much more frequently and the results have been plotted out on four-hourly charts together with the pulse rate in practically all cases of eclampsia and albuminuria of pregnancy. The records thus obtained have proved most interesting and instructive to me and I trust that they will prove the same to you, especially as I have not come across any similar series of charts in medical literature.

We have not so far a large enough number of charts to be of any use for statistical purposes. But on looking through those that we have, there is no doubt that they help us to classify the cases into several groups. I propose to show you six fairly typical samples tonight.

#### Toxæmia of Pregnancy.

CASE I.—The patient was twenty-two years of age and was in her second pregnancy. The first terminated early in abortion. She was admitted in labour at term. There was a history of severe headaches and some swelling of the ankles. On examination it was discovered that the urine contained albumin. The precipitate occupied three-quarters of the test tube after boiling. The blood pressure was 140 millimetres of mercury. The patient was confined five hours after admission. The blood pressure came down immediately after delivery and remained down. Up to the eleventh day after delivery the urine contained a trace of albumin (see Figure I.).

The diagnosis is a mild grade of "toxæmia of pregnancy." The prognosis as to future pregnancies is good.

#### Toxæmia of Pregnancy: Eclampsia.

CASE II.—This patient was twenty years of age and was in her first pregnancy. She was admitted six weeks before term. She stated that she had been well up to the day before admission when she vomited blood. She had epigastric pain for the one day. There was no oedema, but a diminished amount of urine was being passed. The urine when examined was found to contain albumin which occupied three-quarters of the column in the test tube after boiling. The blood pressure was 136 millimetres of mercury.

<sup>1</sup> Read at a meeting of the Section of Obstetrics and Gynecology of the New South Wales Branch of the British Medical Association on August 6, 1924.



The patient was treated with purgatives and hot packs over the loins and was given water only for the first three days. She was then given milk in addition on the fourth and fifth days when the blood pressure appeared to be rising. The milk was consequently withdrawn. There was a sudden rise of blood pressure on the sixth day, followed shortly after by the first eclamptic fit. She came into labour and was delivered of a still-born infant weighing 2,040 grammes (four and a half pounds) nine hours after first fit and half of an hour after the fifth. The last fit occurred eight hours after confinement. "Veratrone" was used, but the doses were too small and it did not control the fits. The fits ceased after an injection of morphine.

The blood pressure came down and remained below 130 millimetres except for one day during the first week. It remained below 120 millimetres during the second week. The pressure during the last two days is shown on the chart. Albumin was present in the urine until the fourteenth day of the puerperium, but none was detected during the last seven days of her stay in hospital (see Figure II.).

The diagnosis was "toxæmia of pregnancy" followed by eclampsia. The prognosis as to future pregnancies is probably good.

This is an exceptionally interesting chart in several respects. In the first place eclampsia does not often supervene after treatment has been instituted in hospital. In the second place there was the apparent improvement during the first three days while the patient was existing on water only given by mouth. In the third place there was noted an increase of blood pressure and of the pulse rate

when milk was added to the diet. The fourth point is that a considerable and sudden rise in the blood pressure was registered just before the fits appeared. The fifth point is the moderate degree of elevation of the blood pressure all through, except just before the onset of the fits.

#### Toxæmia of Pregnancy: Eclampsia: Renal Lesion.

CASE III.—This patient, aged twenty-two years, was admitted in labour in the thirty-seventh week of her first pregnancy. There was a history of her having had eleven fits before admission. The urine became solid on boiling. It contained blood. The blood pressure was 170 millimetres of mercury. Three eclamptic fits occurred shortly after admission. "Veratrone" was injected and no further fits occurred. A still-born infant was delivered with forceps four hours after the last fit. The patient had mild sapræmia from the fourth to the eighth day of the puerperium with increased pulse rate.

The chart shows the effect of "Veratrone" on the blood pressure and the pulse rate. It also demonstrates the peculiar, persistent rise of blood pressure after the termination of labour. There was a gradual diminution in the height of the blood pressure in the early days of the puerperium; then a period with intermissions and a maximum daily rise to the 170 millimetre mark, followed by a gradual, steady fall during the third week. The blood pressure was still above the normal line when the patient was discharged. The urine contained varying small amounts of albumin up to the time the patient left the hospital (see Figures III. and IV.).

The diagnosis was "toxæmia of pregnancy" followed by eclampsia and probably some permanent renal damage.

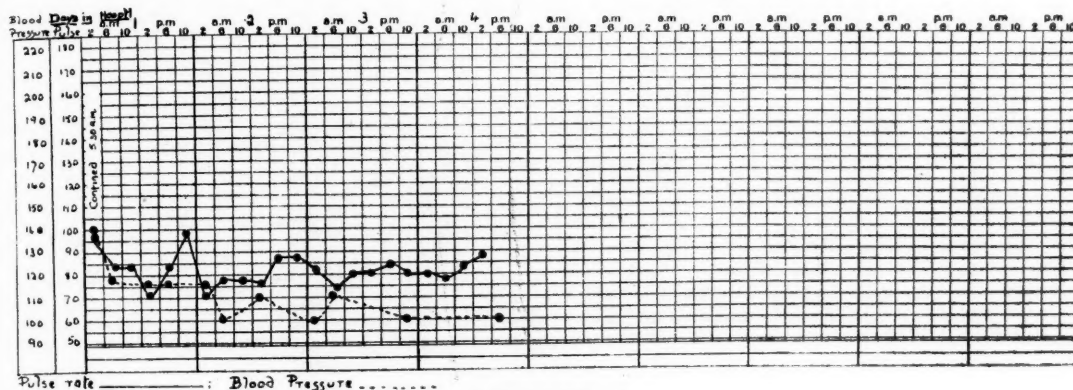


FIGURE I.—E.

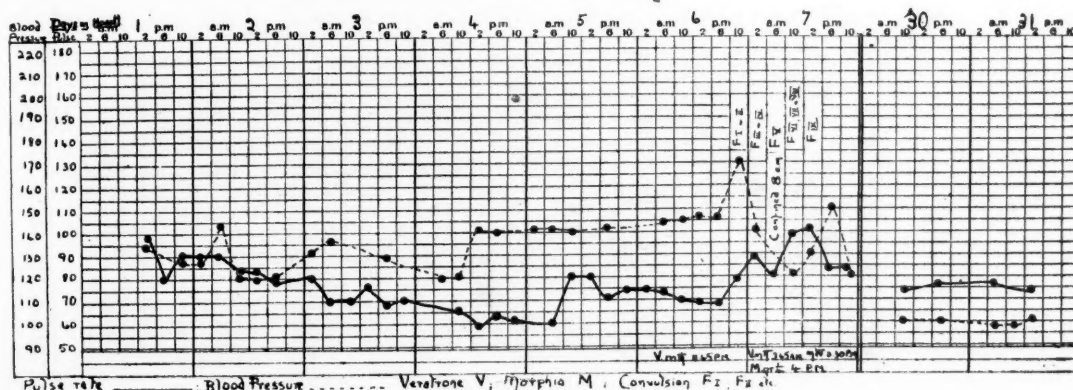


FIGURE II.—S.

The prognosis as to future pregnancies is doubtful. The patient will need careful ante-natal supervision.

#### Chronic Nephritis.

CASE IV.—This patient is a *primipara*, aged twenty-five years. She was admitted in the twenty-third week of pregnancy with a history of shortness of breath and headache for a considerable time. She had also had swelling of the feet and dimness of vision for eight days. Examination revealed an accentuation of the second aortic sound. The urine contained "one-half" albumin. The blood pressure was 190 millimetres of mercury.

The condition of the patient did not improve during the first few days and as the ophthalmologist reported that a hæmorrhagic neuro-retinitis was present, induction of abortion was indicated. Bougies were inserted twice and after the second insertion a macerated foetus was expelled. The amount of urine passed in twenty-four hours was low during the first two days of her stay in hospital, but later the amount was about normal and the albumin content was not as high as in the previous cases (see Figures V. and VI.).

The diagnosis was chronic nephritis and the prognosis as to future pregnancies is bad.

The chart shows the following points: In the first place the effect of the injection of 0.18 mils (three minims) of "Veratrone" on the second, third, fourth and fifth days is seen; it was injected with the object of preventing the onset of fits. The second point is the diminution of the height of the blood pressure after the delivery. The third matter is the persistently raised blood pressure up to the

time of discharge of the patient from the hospital. The urine still contained a cloud of albumin when the patient left.

#### Chronic Nephritis: Uræmia.

CASE V.—This patient was twenty-one years of age and was in the twenty-sixth week of her first pregnancy. She complained on admission of headache and vomiting which had persisted for two weeks with occasional epigastric pain. There was no swelling of the feet. Examination revealed an accentuation of the second aortic sound. The urine on being boiled became solid with albumin. The blood pressure was 230 millimetres of mercury. The urine diminished in amount during the first three days of the patient's stay in hospital. Later she passed urine in moderate quantities until the time of her discharge to a general hospital.

Premature labour was induced by bougies on the fourth day after admission. A still-born infant was delivered. The patient did not improve after the induction and uræmic convulsions set in thirty-six days later. She was then transferred to a general hospital, but died of uræmia a week after the transfer (see Figures VII. and VIII.).

The following points of interest are noted in the chart. There was an excessive drop in the blood pressure after the injection of 0.42 mils (seven minims) of "Veratrone." The persistence of the high blood pressure after the confinement is also significant.

The diagnosis is chronic nephritis, accentuated by pregnancy; uræmia.

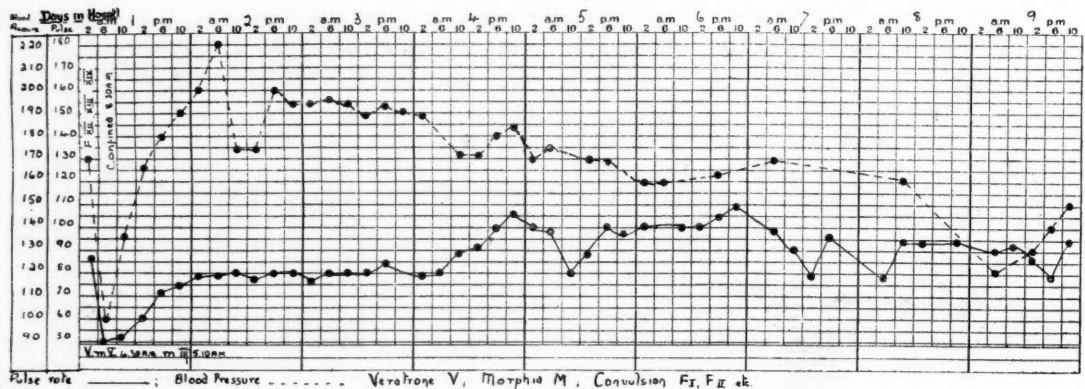


FIGURE III.—H.

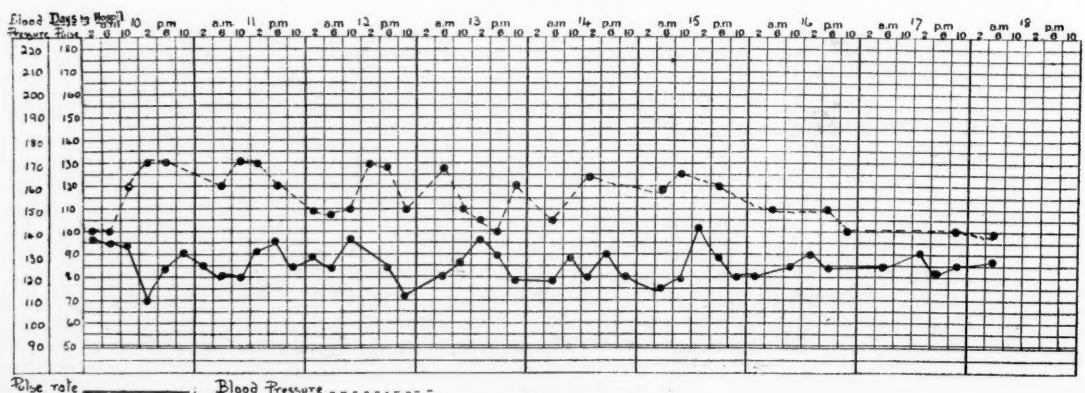
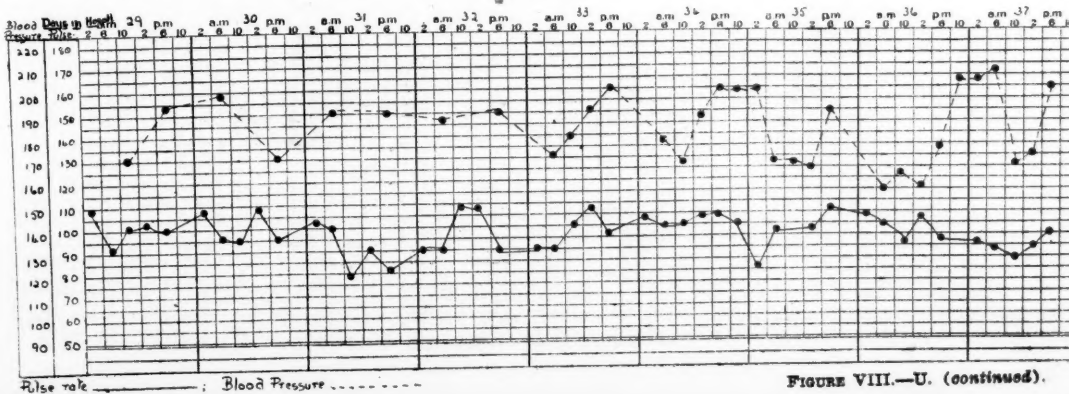
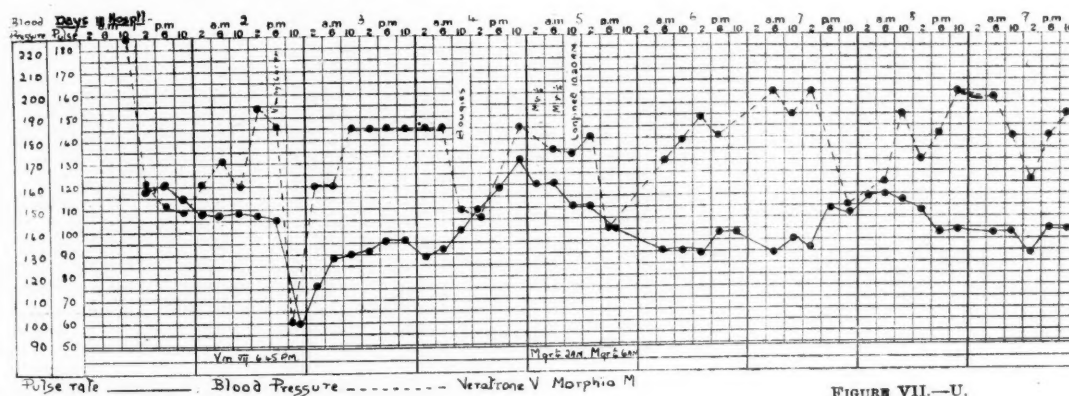
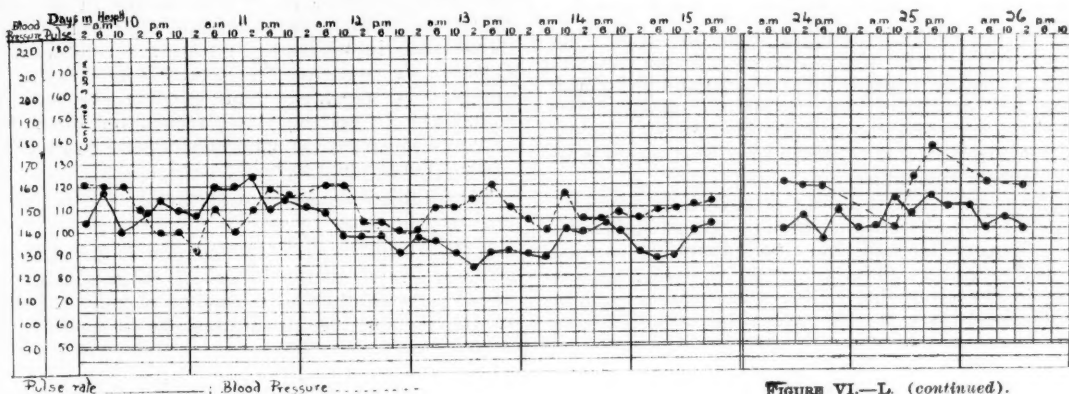
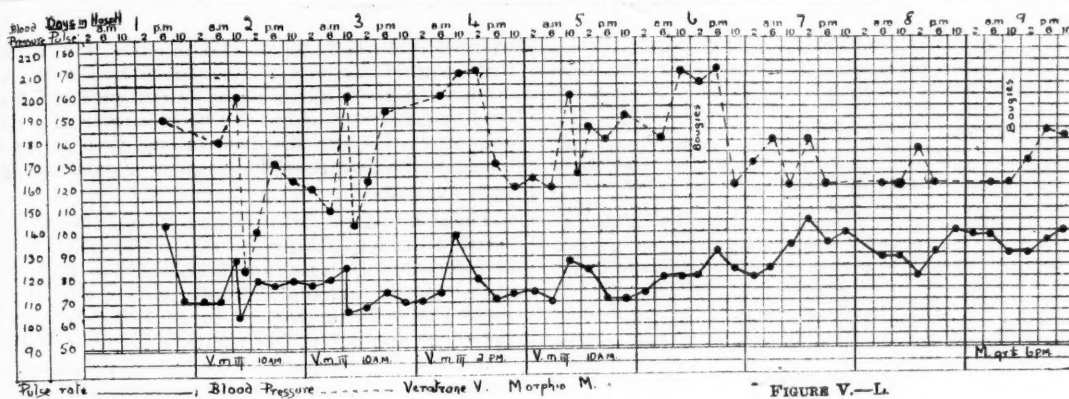


FIGURE IV.—H. (continued).





### Accidental Ante Partum Hæmorrhage.

CASE VI.—The patient was a woman, aged thirty-nine years, in her fifth pregnancy. At the time of admission she was in the twenty-third week of pregnancy. The blood pressure chart was not started until three days after admission. She complained of vaginal hæmorrhage, pain in the lower part of the abdomen and enlargement of the abdomen. These signs had been present for three days.

Examination revealed that the uterus was larger than would coincide with the period of amenorrhœa. A myoma was felt at the fundus. The urinary output was not diminished. There was a slight deposit of albumin in the urine after boiling. The patient was suddenly delivered of a macerated foetus together with an exceptionally large, old retro-placental clot eight days after admission.

The diagnosis is accidental *ante partum* hæmorrhage. In regard to the prognosis the early onset of the trouble in a *multipara*, aged thirty-nine years, suggests some chronic renal lesion. I should advise the patient not to become pregnant again (see Figures IX. and X.).

From the chart it will be seen that there was quite a high range of blood pressure with sudden drops, probably caused by the continued hæmorrhage and a sudden drop after the confinement. The chart is interesting as it illustrates the possible relationship between albuminuria and accidental *ante partum* hæmorrhage.

I grant you that it is not scientifically exact to record merely the systolic blood pressure taken by the palpatory method, but the advantage of this systolic record is that it can be compiled by the nurse in charge of the patient and therefore can be adopted and made use of by medical practitioners

whenever the more complicated urinary and blood tests cannot for any reason be carried out. And even when these chemical tests can be carried out the blood pressure chart can be of service, especially as authorities are divided in opinion as to the clinical significance of the various tests which have been devised.

These blood pressure charts to me seem to correspond in importance to the temperature charts in infectious diseases, but I should like to impress upon you the fact that the information gained from these charts is to be used in conjunction with all the other sources of information before a decision is arrived at in regard to diagnosis, prognosis and treatment. I consider that it is advisable to record the blood pressure every four hours in the more acute stages of these conditions and especially in those cases in which the question of induction of abortion or premature labour arises. During the puerperium morning and evening records are sufficient. In eclampsia we record the blood pressure and pulse rate much more frequently, especially while "Veratrine" is being used.

The charts have been of service to me in the following ways:

1. In albuminuria of pregnancy in deciding (i.) whether the condition is one of "toxæmia of pregnancy" or whether it is one of chronic nephritis. In the former the blood pressure is usually at a

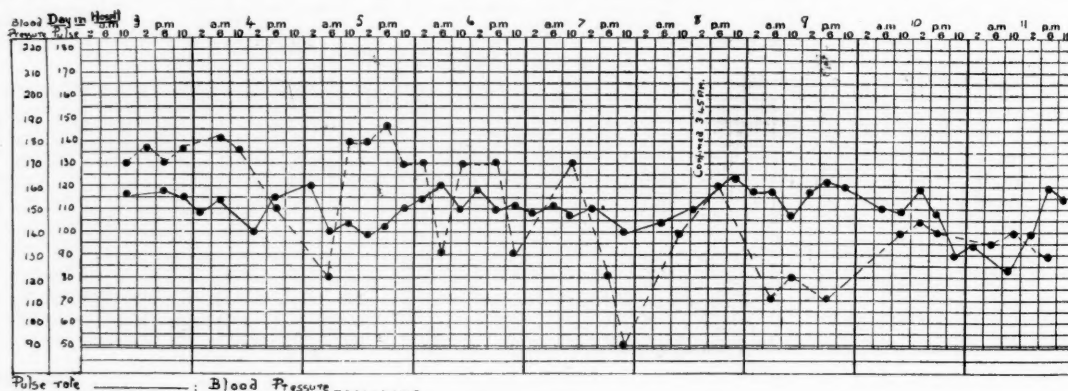


FIGURE IX.—T.

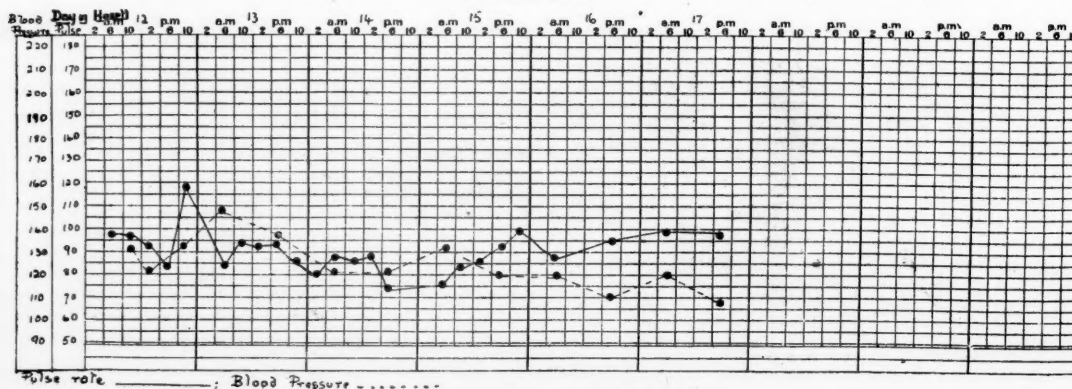


FIGURE X.—T. (continued).



lower level than in the latter, especially if the nephritis is of the interstitial variety. (ii.) It is useful in deciding in both types of cases whether eclampsia is impending or not. Eclampsia is heralded by a persistent rise or by a sudden considerable rise in blood pressure. (iii.) It is also of value in deciding when and how to deal with the condition, for example in regard to the induction of abortion or premature labour, to the exhibition of "Veratrone," to the prescription of a special diet and so forth. We have been using "Veratrone" in small doses, usually 0.18 mils, given hypodermically, when the blood pressure appears to be rising, especially during the first few days after admission of the patient to hospital until elimination is well established. As "Veratrone" seems to control eclamptic fits by a reduction of the blood pressure, it is reasonable to suppose that it may prevent the onset of the fits by the same means.

2. In eclampsia the blood pressure readings and pulse rate records are of great importance as guides to the selection of the course of treatment.

3. During the puerperium the blood pressure chart is of considerable assistance in enabling us to estimate the prognosis for future pregnancies.

I shall conclude by saying that careful blood pressure records will tend to lessen the number of cases of eclampsia, will diminish the number of permanently damaged kidneys and will help us to decide against future pregnancies in those women whose kidneys are too incompetent to survive the attempt to carry a child on to a viable age.

## Reports of Cases.

### AN UNUSUAL ACCIDENT, CAUSING DOUBLE PERFORATION OF THE BLADDER AND PERFORATION OF THE BOWEL.

By WALTER J. HULL, M.B., Ch.M., B.Sc., (Sydney),  
Gulgong, New South Wales.

B.A., aged thirty years, on January 16, 1924, threw a pitchfork with a short handle (about a metre or three feet six inches long) off a low wagon and immediately jumped off after it. The pitchfork which was thrown prongs downwards, instead of falling, stood perpendicular for a moment and B.A. jumped on to the perpendicular handle. The handle was 2.5 centimetres in diameter and had a rough rounded end. It tore through his trousers and entering the anus penetrated the body, according to the patient, to a distance of 37.5 centimetres (fifteen inches). B.A., who was by himself, pulled it out and then drove his team of six horses to the stable, a distance of a quarter of a mile. He unharnessed the horses and walked home, another two hundred yards, having to cross a steep dry creek on the way.

He was brought to me, a distance of twenty miles, by car, arriving seven hours after the accident happened. He was suffering from severe pain in the abdomen and perineum. He thought the handle had penetrated his body alongside the anus, although he felt no pain when he jumped on to it nor when he pulled it out. Immediately after he pulled it out he had an urgent desire to defæcate and squatted down to do so, but passed nothing. On rising to an upright position he experienced pain for the first time of an agonizing type and about a quarter of a cup of blood poured from him. After that he suffered

very severe pain in the penis, abdomen and perineum. He was very thirsty and drank "gallons" of water between the time of the accident and his arrival at the hospital, but he had passed no urine.

On examination he appeared to be in extreme pain and stood bent forwards. His anus was bruised all round and there was blood about his perineum with a distinct smell of urine about it. His abdominal muscles were hard and there was dulness in the flanks when the patient was in the prone position, though this was not considerable. His pulse was ninety-six and temperature 37.2° C. (99° F.), the respirations numbered twenty in the minute. I passed a catheter into the bladder and obtained about ninety cubic centimetres of blood-stained urine. As he had passed his urine ten minutes before the accident, I made the provisional diagnosis of a perforated rectum together with perforation of the small intestines, having decided that the handle had passed up posteriorly to the empty bladder.

Eleven hours after the accident I operated on him. Prior to making the incision, I introduced a Lynch's sigmoidoscope into the rectum, but could see nothing definite owing to the presence of too much blood and the fact that the bowel would not balloon out in response to the bellows.

On removing the preparation dressing from the patient, the abdomen was found to be well distended, a condition not present half an hour previously.

With the patient in a modified Trendelenburg position, I made an incision in the mid-line suprapubically. As soon as the peritoneum was opened, air under pressure blew out (see comment later). The abdominal cavity had a considerable quantity of blood and fluid in it and this was mopped out. A jagged tear which admitted two fingers easily, was present in the top of the bladder. A similar tear was present in the base of the bladder, about 2.5 centimetres behind the urethral opening and in the mid-line. Through these tears the fingers could be passed from the abdominal cavity, through the bladder, into the rectum.

The appendix and meso-appendix were acutely inflamed, due apparently to trauma from the handle. No injury to the small intestines was found. I removed the appendix, stitched the tear in the top of the bladder with three layers of sutures, having decided to leave the tear between base of bladder and rectum alone. A catheter was secured in the bladder through the penis and the abdominal wall was sutured without drainage.

Twelve hours after the operation the patient's temperature had risen to 38.6° C. (101.6° F.) and his abdomen was distended and hard. He was given 0.03 gramme (half-grain) doses of calomel every half-hour till 0.5 gramme (eight grains) had been given. As his bowels had not opened he was then given three one-drachm (four cubic centimetres) doses of liquid extract of cascara at hourly intervals. His bowels were then opened and the temperature dropped to 37.8° C. (100° F.), the distension and rigidity gradually disappeared. I thought it wiser not to give enemata, owing to the communication between the rectum and bladder.

After the sixth day his temperature did not reach 37.8° C. (100° F.) and after the ninth day his temperature was normal.

The catheter was removed from the penis after three days, very little urine having passed through it, practically all urine escaping per rectum.

On the fourteenth day I washed his bladder out with 1 in 5,000 solution of potassium permanganate, as there was a little pus in the urine passed *per rectum*. The next afternoon (fifteenth) he commenced to pass his urine freely *per urethram* and from then on he made an uneventful recovery, passing all urine by the natural route.

He was given "Hexamine" 0.5 gramme (seven and a half grains) three times a day with sodium benzoate one gramme (fifteen grains) from the first. *Mistura potassii citritus cum buchu* was submitted one day in four when his urine irritated him. This kept his bladder clear.

He left hospital seven weeks after the accident quite well, but with a feeling of tightness about the perineum. Two months after he left hospital he reported himself

perfectly well and able to do as hard a day's work as ever. He could play tennis and other games as heretofore. He also said that erection of the penis and ejaculation were both quite normal.

#### Comments.

(i.) The removal of the handle by the patient and the subsequent disposal of his team and his walk home are noteworthy after such a severe lesion.

(ii.) At the time of the accident it was very hot weather. Therefore, the fact of his having passed no urine since the accident and of his bladder being almost empty seven hours later were not inconsistent with non-perforation. The presence of blood in the bladder was due, I thought, to bruising of the wall.

(iii.) The pumping of air into the rectum by the bellows of the sigmoidoscope proved unexpectedly that the bowel was certainly perforated and this was shown by the rapid distended of the abdomen. This procedure could be adopted as an additional aid to diagnosis in a doubtful case.

(iv.) The tear between the base of bladder and rectum healed perfectly without any help whatever.

(v.) Apparently no lasting damage was done to the sympathetic nerves connected with the hypogastric plexus, neither were the *vesicula seminales* or *ducti* permanently damaged, as shown by the fact that erection and ejaculation are both apparently normal.

The handle entered the bladder, as far as I could ascertain, between the ampullary portions of the converging *ducti deferentes*.

#### Acknowledgment.

I have to thank Dr. Harvey Nickoll, of Mudgee, for valuable assistance at the operation and my colleague, Dr. R. M. Allport, for a carefully given anaesthetic.

#### A CASE OF BILHARZIASIS ENDEMIC IN AUSTRALIA.

By E. P. HOLLAND, M.B. (Sydney),

AND

E. A. WOODWARD, M.B., Ch.M. (Sydney),  
Grafton, New South Wales.

N.F., MALE, aged three years, who was born and has always lived in the same house in Grafton, is infected with *Bilharzia haematobia*.

The father has been to the war, but only called at an Egyptian port in passing.

We have attended the boy lately for double *otitis media* and several minor complaints.

About three months ago his mother informed us that he was very restless at night and seemed to have intense irritation of the anus. We prescribed a weak mercurial ointment and instructed her to watch for thread worms. These were never found, but the irritation ceased.

A fortnight ago we called and found that he had acute lobar pneumonia. His mother told us then (she had intended to tell us long ago) that since the age of eighteen months the boy had frequently bled from the rectum; the bleeding was not associated with constipation or diarrhoea and usually came on independent of any fecal evacuation.

We removed him to hospital for the more serious condition and there to our surprise found that the urine contained blood in gross amount.

On microscopical examination red and white blood cells were seen and the typical apical spined ova of *Bilharzia haematobia*. A number of the ova were twice to three times as large as the typical ones, spherical, the clear capsule much thicker, the spine missing and the ovum seemed to show signs of commencing segmentation. One cell bore a lateral spine. The blood disappeared gradually from the urine, no more ova were passed and no further rectal bleeding has yet occurred.

The boy is now convalescent after the lobar pneumonia.

## Reviews.

### GYNÆCOLOGY.

DR. W. P. GRAVES'S "Gynecology" has been a standard American text-book since its first appearance. The third edition<sup>1</sup> is well up to the standard of the previous editions. New work has been embodied to bring the text up to date, while the original arrangement of the book still stands. The author divides the work into three parts. In Part I. he discusses the physiology of the uterus and ovaries and the relationship of gynecology to the general organism. He deals at length with the influence of the organs of internal secretion and the bearing that disturbances of their function has on gynecology. In regard to the relation of gynecology to the various systems of the body the author has gone to considerable trouble to correlate the disturbances of these systems with phenomena attributable to disease of the female sexual organs. But some of his references would seem to have only a very slight bearing on gynecology; for example it is not evident how the higher level of the bifurcation of the aorta in women or the higher position of the apex beat, which are claimed by Graves as feminine peculiarities, can be concerned in women's special diseases.

In Part II. a full account is given of disease of women and the pathology is fully discussed and well illustrated. We notice in the description of *kraurosis vulvae* and *leucoplakia* no reference to the work of Berkeley and Bonney on this important subject. In the section dealing with the ovaries the author has embodied a full account of Sampson's work on the so-called "chocolate cysts" of the ovary. But the claim that these growths are next in frequency to leiomyoma of the uterus needs further support.

In Part III. a full account is given of various operations used in gynecology. There is an excellent description of conservative ovarian surgery.

The book is very well illustrated and printed and the index is complete and accurate.

### RADIOGRAPHY.

WE have received from the publishers a copy of the second edition of Ironside Bruce's "System of Radiography," edited by Dr. J. Magnus Redding, Senior Radiologist to Guy's Hospital.<sup>2</sup> The first edition (1906) has long been out of print and the present edition should fill a long felt want in supplying an atlas of the normal appearances of the various regions of the body. The author describes a method of systematic radiography of the various regions by means of correct situation of the central bundle of X-rays over well established surface landmarks. In this manner exactly similar pictures of normal parts are obtained and it is a simple matter to detect quickly any deviation from the normal. In order to demonstrate normal epiphyseal appearances a subject of ten years of age was decided upon, as at this age it is easy to demonstrate most epiphyseal centres.

The illustrations on the whole are good, although the radiograms of the vertebral column are not as clear as would be expected in such a work. In fact, the radiograms of the thicker parts generally suggest that the radiograms were taken with rather a broad focus tube and lack the fine detail seen in pictures taken with fine focus tubes.

The skiagram of the chest is really poor and includes practically none of the fine detail which is so essential to a correct interpretation. A very useful inclusion is a list of the various "normal" variations of the different regions; these variations are noted under the radiogram of the region under examination.

<sup>1</sup> "Gynecology," by William P. Graves, A.B., M.D., F.A.C.S.; Third Edition, Thoroughly Revised; 1923. Philadelphia and London: W. B. Saunders Company; Melbourne: James Little; Royal 8vo., pp. 936, illustrated.

<sup>2</sup> "A System of Radiography with an Atlas of the Normal," by W. Ironside Bruce; Second Edition by J. Magnus Redding, F.R.C.S. (Eng.), L.R.C.P.; 1924. London: H. K. Lewis and Company, Limited. Oblong Imperial 4to., pp. xii. + 98, with 197 illustrations. Price: 30s. net.

## The Medical Journal of Australia

SATURDAY, DECEMBER 6, 1924.

### The Health Commission.

SOME months ago the Commonwealth Government decided to appoint a Royal Commission to inquire into the questions relating to the preservation of the health of the people of Australia. The object that the Government had in view in appointing this body was to achieve greater uniformity and coordination of the services of the Commonwealth and the States in the administration of the health laws. The announcement of the appointment of five Royal Commissioners was made on November 25, 1924. The woman representative is Doctor Jane S. Greig, medical officer of the Department of Education in Victoria. The Government has appointed three members, Sir George Syme, Doctor Frank S. Hone and Mr. R. S. Innis Noad, a member of the Legislative Council of New South Wales. Doctor R. H. Todd has been appointed as the nominee of the British Medical Association selected unanimously by the Branch Councils and the members of the Federal Committee of the British Medical Association in Australia, of which he is Honorary Secretary. The secretary of the Commission is Mr. William Trathen, an officer of the Department of Health of the Commonwealth.

While the exact terms of reference are not yet available, the general scope of the inquiry is known. The first and most important matter will be the consideration of the best way of coordinating the administrative control of the health legislation by the Commonwealth and State Governments. In close connexion with this inquiry will be the investigation of the relationship between the health departments and the other departments of the several Governments. This will necessarily raise many questions concerning the division of responsibility for the administration of health laws between the Commonwealth Government, the Governments of the States and the local health authorities. The prevention of the spread of infective disease, the

improvement of sanitation, the exercise of control over the purity of food and drugs, the preservation of the health of mothers and their infants and the development of industrial hygiene will necessarily engage the attention of the Commission. An attempt will be made to suggest means whereby the medical profession as a whole may be brought into close relationship with the health authority and the services of the general medical practitioner may be utilized for the prevention of disease and the raising of the general standard of the health of the community.

The importance of the inquiry is apparent. While the reference will obviously be extremely wide, the utility of the Royal Commission would be seriously restricted if the Government sought to limit its scope. It has been pointed out in these columns many times during the ten years since THE MEDICAL JOURNAL OF AUSTRALIA was established that a reform of the laws governing the endeavour to improve the health of the community is an urgent necessity. The want of uniformity of legislation and of methods of administration, the tendency to place the chief dependence on sanitary measures for the preservation of the public health, the relative failure to exploit the more modern personal methods of attack on disease, the frequent complacency of the central authority in prescribing health measures for the local authority to adopt without any serious attempt to compel obedience and lastly the regrettable lack of cordial cooperation between the several health departments have led to this demand. The fact that the Royal Commission will seek to define the proper functions of the Commonwealth and the State Governments in order to prevent overlapping may be regarded as an earnest of the determination on the part of the Government of Australia to stimulate the State Governments to join hands in a serious, energetic attempt to gain a mastery over preventable disease. Hitherto the war against the myriads of tiny agents of destruction has been waged half-heartedly. The annual death roll from infective disease is an eloquent testimony to this indictment. The Royal Commission is so constituted that an unbiassed exposure of methods and of weapons can be made and a frank criticism can be voiced concerning the opportunities that have been lost and the time that



has been wasted. The matter of inquiry is of such vital importance to Australia that neither vested interests nor personal considerations nor departmental susceptibilities may be permitted to stand in the way of reform.

The personnel of the Royal Commission will command the approval of the majority of thoughtful people. Of the five members only one is a departmental medical officer and that member, Doctor Jane S. Greig, is well known to be a frank critic of existing departmental methods. Four of the five are distinguished members of the medical profession. It would be contrary to our usage were we to detail the past achievements and intellectual endowment of these eminent practitioners. But it is permissible to assert that each one is free from prejudice and preconceived ideas concerning the matters to be investigated and none will be restrained from exercising complete freedom of thought and action on account of departmental control or political bias. It would have been better had the Government selected as the fifth member a well known financial expert, for the Commission will be brought face to face with problems involving the expenditure of very large sums of money. The medical members will be able to substantiate the thesis that the value of health is immeasurable and that no price is too high to pay for good health. It is equally true that no authority is justified in sanctioning extravagant administration.

The Royal Commission has been entrusted with the conduct of the most important inquiry conceivable. It will carry with it the good will and sympathy of the medical profession. If the work is well done, Australia will be heavily in the debt of each of its members.

### Current Comment.

#### THE BLOOD PLATELETS.

In July of this year we drew attention to the scarcity of information to be found in text-books on the subject of the blood platelets. This statement was made in connexion with a study of the value of splenectomy in *purpura hæmorrhagica*. The platelets are formed by the megakaryocytes in the bone marrow and it would be expected that variations in their number would occur with

abnormalities of the hæmatopoietic system. The platelets are held to have a very definite part to play in the coagulation of blood and for this reason also observations in regard to their occurrence and characteristics may be of value. Dr. G. J. Crawford has recently published some results of study on blood platelets in anæmia and acute diseases.<sup>1</sup>

Dr. Crawford first of all states that a platelet count as estimated from ordinary blood films is fallacious. In adults it is best to prick the finger at the root of the nail through the diluting fluid. In young children it is advisable to put a drop of fluid on the lobe of the ear and prick through it. He carried out a series of observations on suitable patients. In addition to counting the platelets he studied their morphology and tried to find out whether there was any correlation between the platelet count, bleeding time and coagulation time. In regard to the morphology no striking alterations were found. There was considerable variation in size, giant forms up to five  $\mu$  or six  $\mu$  being sometimes seen. These giant forms were not peculiar to any special blood condition and "on the whole" no relation could be established between variations in size and the different diseases. The granular content of the platelets also varied considerably and seemed most abundant in the blood of patients whose bone marrow was undergoing active proliferation as in such conditions as myelogenous leucæmia. In the blood of patients with pernicious anæmia granulation was scanty. In some instances granules were clumped together and resembled a nucleus, but no typical nuclear forms were seen. A series of counts were made on normal individuals. Four persons were thus studied. Nineteen counts were made and a margin of error of not more than 10% was found. The number of platelets varied from 250,000 to 400,000 per cubic millimetre. It must be admitted that the number is very much too small to permit the formation of any definite conclusions in regard to the limits of normality. In *purpura hæmorrhagica*, lymphatic leucæmia and pernicious anæmia the platelets were found to be considerably diminished. In secondary anæmia they were not diminished and in one instance showed a tendency towards increase. The platelets were increased in numbers in myelogenous leucæmia and in lymphadenoma. In one instance of each disease the number was over one million per cubic millimetre. Treatment of the patient with X-rays caused a diminution in the number of platelets. *Post mortem* examination was carried out on the bodies of two patients dead of myelogenous leucæmia. Proliferation of megalokaryocytes was found and numerous young forms were seen. This was regarded as pointing to the origin of platelets from this portion of the hæmatopoietic system. We have previously referred to the view that the spleen is the organ concerned in the destruction of blood platelets and it is interesting to note in this connexion that splenectomy in one instance resulted in a very considerable increase of the platelets. In a patient with hæmolytic jaundice the number rose from 455,000 before splenec-

<sup>1</sup> The Lancet, September 20, 1924.



tomy to 1,123,000 per cubic millimetre after the operation. It is interesting in conclusion that no direct correlation could be noted between platelet count, bleeding time and coagulation time. The bleeding time was usually prolonged when the platelets were diminished to any considerable extent. The coagulation time appeared to be quite independent of the number of platelets and in the opinion of Dr. Crawford would seem a very unreliable guide in regard to the tendency to hæmorrhage apart from hæmophilia in which bleeding time and platelet count are stated to be approximately normal, while the coagulation time is definitely prolonged.

#### THE MECHANISM OF ISO-HÆM-AGGLUTINATION.

IN scientific work it is often extremely difficult to distinguish sharply between fact and theory and to differentiate observed phenomena from their interpretation. In consequence the two are usually recorded together and both find their way into current doctrines until someone challenges the correctness of the interpretation. In spite of the uncertainty of these interpretations, they serve a very useful purpose as working hypotheses. It would be detrimental to progress were they held in abeyance until all reasonable doubt were dispelled.

A little over a year ago Guthrie and Huck made some astute observations concerning the grouping of the blood of certain persons and as a result of the anomalous behaviour of these samples when tested with serum and with blood corpuscles of known groups, they concluded that the doctrine of four groups and of two agglutinins and two agglutinogens was no longer tenable.

This view has recently been questioned by Professor Leone Lattes and Dr. Alfonso Cavazzuti<sup>1</sup>. These two immunologists discovered that the blood of one of them behaved like the anomalous blood which first attracted the attention of Guthrie and Huck. In this instance the serum appeared to contain Guthrie and Huck's agglutinins A, B and C. Later they sought and found persons whose blood corpuscles contain the agglutinogens a, b and c. In particular they record the behaviour of the blood of a normal individual. His red corpuscles were agglutinated by a test serum of Group I. which is held to contain the agglutinins A and B. His serum agglutinated the red blood corpuscles supposed to belong to a new group containing agglutinogens a and c. It did not agglutinate Group I. or Group III. corpuscles. Professor Lattes and his colleague then absorbed this serum with the red blood corpuscles of Group III. which contains agglutininogen a only. When a minimum quantity of corpuscles was employed, the agglutinating power left in the serum toward red blood corpuscles supposed to contain a and c was considerable. But when an excess of red blood corpuscles was used for the absorption, the power of agglutinating the corpuscles containing a and c was much diminished. They claim that this is inconsistent with the hypothesis that there is

a third agglutinin and a third agglutininogen. They explain the anomaly as purely a quantitative and not as a qualitative one. We have retained Guthrie and Huck's symbols and Moss's grouping, notwithstanding Professor Lattes's protest and his employment of Jansky's grouping and von Dungern's symbols. The experiment explained symbolically is as follows: Serum containing A, B, C is brought in contact with cells containing a. After the cells have claimed as much agglutinin of the corresponding kind as they can hold, the cells are removed and the serum is tested with blood corpuscles containing a and c. They claim that when the amount of a is insufficient to remove all the A from the serum, the agglutinating power is maintained. But when all the A is removed, the agglutinating power is much weakened. If the serum contained C and the red blood corpuscles contained c, agglutination would take place. Guthrie has carried out many absorption tests and has not encountered this behaviour. Professor Lattes does not give sufficient information to prove that his so-called Group III. red blood corpuscles were regular; in other words he may have been absorbing the serum with an anomalous strain of cells. Again it is extremely dangerous to apply quantitative methods to some of these biological reactions. It is by no means proven that agglutinogens and agglutinins are chemical substances in the ordinary sense of the term. They are possibly biophysical qualities of some normal constituent of the serum and corpuscles. If this be true (the hypothesis is merely given as a possible explanation), neither Guthrie's nor Lattes's views would be strictly accurate. But the former would be a highly convenient working formula.

Professor Lattes and Dr. Cavazzuti endeavour to analyse the reasons for the anomalous behaviour produced by varying quantitative relations and postulate variations in the sensitiveness to agglutination, avidity for agglutinin and degree of antigenic power. Under certain conditions they have found irregular group reactions which could not be explained on the assumption of quantitative variation. They describe these peculiar responses in some detail and endeavour to put forward the hypothesis of the presence of pseudo-agglutination. This phenomenon is quite devoid of specificity. The pseudo-agglutinin cannot be removed by absorption and often the pseudo-agglutination does not coincide with true auto-agglutination. The serum of a certain person was found to agglutinate the red blood corpuscles belonging to each of the four classical groups. The characteristic feature of this behaviour is that the agglutination is usually weak and slow and it does not occur in all combinations. Professor Lattes tested the serum with the red blood corpuscles of thirty-eight persons; agglutination of some degree occurred with sixteen.

Hooker and Anderson have postulated the presence of an antigen (x) common to all groups of red blood corpuscles. This non-specific agglutininogen or antigen may have been involved in the pseudo-agglutination described by Professor Lattes. If so, the second finding would not be relevant to the matter at issue.

<sup>1</sup>The Journal of Immunity, September, 1924.

## Abstracts from Current Medical Literature.

### SURGERY.

#### Spinal Cord Tumours.

A. W. ADSON (*Surgery, Gynecology and Obstetrics*, July, 1924) describes the main clinical features of spinal tumours, the aids to their diagnosis and their operability. Victor Horsley in 1887 successfully removed the first spinal cord tumour and since then a considerable number of tumours have been localized and removed. The history of the patient suggests the localization. If the tumour is situated dorsally, sensory disturbances will be the first symptom; if anteriorly, the first complaint will be one of motor trouble and if laterally, antero-laterally or dorso-laterally, the common Brown-Séquard syndrome will be present. Root pains may be found and the involvement of the bladder and rectum occurs late in the course of the disease unless the lesion is intra-medullary. The diagnosis from sclerosis should present no difficulty as tumour gives rise to symptoms referable to definite segmental levels. A myelitis too is distinct in causing a complete lesion with symptoms within a very few days. The patient with a tumour has a loss of reflexes at the level of the tumour and increased reflexes below the segment involved. Apart from the history there are several tests of value. The fluid obtained by spinal puncture may contain an increase of globulin and may be yellow from xanthochromia, a significant but not pathognomonic feature. A block in the flow of the cerebro-spinal fluid is suspicious and a difference in the pressure at the posterior cistern and the fourth interspace is a valuable indication. Dandy's pneumography of the sub-arachnoid space is an aid and lipoidal injection into the same space for radiography as developed by Sicard, is also of help. A thorough neurological examination, however, is much more valuable than all these tests in the accurate localization of the tumour. Of the tumours in the spinal cord 60% can be removed, as they are of the nature of endotheliomata, fibromata, psammomata or fibro-neuromata. The tumour that can be best removed, is the subdural, the extra-medullary type that produces direct pressure. The operation of laminectomy under paravertebral local anaesthesia has proved of great value. The post-operative care of these patients is the same as that of patients suffering from general surgical conditions, but especial care is directed to the avoidance of infection of the bladder and kidneys.

#### Perforating Ulcers of the Stomach and Duodenum.

ERNEST R. SCHMIDT (*North-West Medicine*, September, 1924) discusses the treatment of perforating ulcers of

the stomach and duodenum. Of forty-four patients treated twenty-four were re-examined some time after operation. The condition found at operation depends on three factors: the patient's physical condition before the perforation, the severity of the peritonitis and the time that has elapsed since the perforation. In young patients with old adhesions the outlook is more favourable than in elderly people in whom there are no existing adhesions. Of forty-six patients subjected to operation twelve died. The method of treatment used is operative. It was devised by Rissler, of Stockholm, and consists of excising the ulcer longitudinally and sewing it up transversely, after which Witzel's gastrostomy fistula is made, the contents of the peritoneum removed with sponges moistened with warm saline solution or if there is evident and generalized peritonitis, the whole peritoneal cavity is washed out with warm saline solution and the abdominal wound closed without drainage. The argument in favour of gastrostomy put forward is that it acts as a safety valve to the stomach allowing the contents to run out as soon as there is any retention. This avoids the necessity for gastro-enterostomy even if there is obstruction at the pylorus, as the function of the pylorus is usually re-established seven days after the operation. The gastrostomy tube is attached to a long rubber tube communicated with a bucket at the bedside. The intake through the mouth is compared with the output through the tube and when the latter is less than the former, the tube is clamped for a while. If the patient stands this well, the tube is clamped for a longer period and at last removed altogether, usually in from seven to ten days. Of twenty-two patients traced twenty-one have been able to continue their work. It is claimed that this method ultimately leaves a normal stomach, that it is simple, that it gives the patient no extra shock and that it relieves partial obstruction.

#### Spine Fusion in Treatment of Vertebral Tuberculosis.

RUSSELL F. SULLIVAN (*Boston Medical and Surgical Journal*, July 17, 1924) gives his personal experience of Hibbs's operation of spine fusion for the treatment of vertebral tuberculosis. He points out that there are two main courses of treatment, non-operative or recumbent and operative. The operations devised are spine fusion of Hibbs and tibial bone graft of Albee, both of which were devised and introduced about the beginning of 1911. Hibbs's operative treatment is as follows: Skiagrams of the spine are taken both laterally and antero-posteriorly. The fusion includes two healthy vertebrae below and two healthy vertebrae above the diseased area. A special back brace of steel is made and fitted prior to the operation. The patient is placed in a prone position, an incision made through the skin exposing the tips

of the spines of the segments to be fused. The periosteum over the tips and the interspinous ligaments are split and the bone is laid bare down to the lateral articulation on the transverse processes. These lateral articulations are opened and the periosteum and ligaments are curetted from the adjacent edges of the laminae and bases of the spinous processes. A piece of the bone from each lamina is elevated with a small chisel and turned from above downwards to rest with its free end on the one below. Again from above downwards each spinous process is fractured with a bone forceps and turned down with its tip resting on the bare bone below. The periosteum and ligaments previously pushed aside with the elevator from the laminae are brought together in the mid-line and sutured. The subcutaneous tissue and skin are stitched over this. The back brace is applied on the operating table and the patient is kept recumbent for eight weeks, at the end of which time standing and walking are allowed and the patient sent to the country. The apparatus is discarded six months after the operation in the case of adults and in one year in the case of children. Over seven hundred patients have been subjected to this operation without a death. The argument adduced against the operation that it might interfere with growth of a child has been disproved by actual observation and measurement. Bony fusion takes place more rapidly in the children than in adults. The author considers this the best of all methods of treatment for vertebral tuberculosis as it offers the patient a hope of cure in a reasonable time with the least inconvenience to the family.

#### Excision of the Glands of the Neck.

PIERRE DELBET (*Revue de Chirurgie*, No. 6, 1924) in writing of the treatment of cancer of the tongue with extensive involvement of the glands of the neck, discusses the operation he has performed of resection of part of the external carotid artery together with the jugular vein. He finds that the prognosis is so bad that he considers it justifiable to operate even in the presence of a mass of glands surrounding and matting together the large vessels, as permanent cure may be obtained. After incising and turning back the skin and platysma he searches underneath the sternomastoid which is retracted strongly, for the most posterior glands to begin his dissection from behind forwards. If the internal jugular vein is found adherent to the mass, it is clamped above and below and divided, the upper section being made high up. Dragging this forwards he then comes on to the external carotid artery from the outer and posterior aspect; he ties it at the level of the superior thyroid artery. The lingual and facial arteries have ultimately to be tied at their point of origin and this he states makes no difference to the circulatory condition found after operation. He then ties the external

carotid artery between the superior thyroid branch and the mass. At the superior end of the mass he finds more difficulty, as the occipital artery has to be tied as well as the carotid. Care is taken to retract the hypoglossal nerve in order to preserve it from damage. After the carotid artery has been cut between ligatures above and below, the whole mass is drawn forward and one of the posterior aspects of the lingual and the facial arteries are exposed. It is then easy to tie them at their points of origin. It only remains to lift out the submaxillary gland, to tie the facial vessels again at the lower border of the maxilla and to ligature the base of Wharton's duct. This dissection leaves the bed of the mass dry and the line of cleavage in the tissues is easily made. The principal advantage of this technique is that a clean sweep can be made of even the worst cases. In spite of their appearance these conditions at times may be cured.

#### Treatment of Traumatic Joint Lesions.

B. BREITNER (*Wiener Medizinische Wochenschrift*, September 13, 1924) gives an account of the treatment of compound fractures, dislocations and wounds of joints at the Elselberg Clinic. The treatment of open wounds in general entails the employment of aseptic technique. According to the severity of the lesion, arthrotomy with chemical disinfection was performed. When there was much destruction of bone, primary resection was considered. Amputation was reserved for patients with definite infection. When non-infected wounds were closed, movement was begun early. Fixation of the joint was usually adopted during the first week. In the treatment of simple joint fractures he had good results from operative treatment though many cases were treated conservatively.

#### Pneumococcal Peritonitis.

HANS SALZER (*Wiener Medizinische Wochenschrift*, May 17, 1924) states that pneumococcal peritonitis occurs in 5% of children supposedly suffering from acute appendicitis. In very few is the diagnosis made prior to operation. The patients can be divided into two groups: (i.) Those suffering from an acute form who frequently die in the first day; (ii.) those whose condition goes on to abscess formation in the second week and to recovery after drainage. It is the case of peritonitis in young girls. The author in a series of twenty-two patients found that nineteen were females. The source of infection in girls is usually the genital tract, whilst in boys it is the appendix. The prognosis is worse for girls than boys. The symptoms are sudden onset of abdominal pain, vomiting, diarrhoea, cyanosis, herpes and a small running pulse. Abdominal tenderness is present and there is slight rigidity. Gonococcal peritonitis is differentiated by the absence of cyanosis and prostration, whilst the

pulse is good. Examination of the vaginal secretion may give valuable help. The results of early operation are very bad. Of eight patients so treated six died. The author waits until the general condition improves and until fluid or an abscess can be palpated. Eleven patients treated thus showed a mortality of two. Whilst waiting, the author obtained much benefit from the intravenous use of strophanthus.

#### Operative Treatment of Bronchial Asthma.

F. W. KAESS (*Klinische Wochenschrift*, May 13, 1924) records five cases of resection of the cervical sympathetic for severe bronchial asthma. There was a typical history in each patient of definite dyspnoea of long duration. In all except one in whom definite bronchospasm under narcosis necessitated a shortening of the operation and only partial resection, the whole cord with the three ganglia was removed. Inspiration and expiration became freer, the feeling of tightness in the chest disappeared and no further asthmatic attacks occurred. The author states that the number of cases and the period of observance of the patients were too small to allow the formation of any definite conclusions though the results were promising.

#### Thyreo-Cardiacs.

F. H. LAHEY and BURTON HAMILTON (*Surgery, Gynecology and Obstetrics*, July, 1924) discuss the diagnostic difficulties and the surgical treatment of thyroid disease complicated by cardiac conditions. They lay down the following rules: (i.) Every patient with cardiac disease and decompensation and with a goitre of whatever size or shape and however symptomless previously, should be suspected of hyper-thyroidism; (ii.) every patient with cardiac disease and with prominent or staring eyes is probably a subject of hyper-thyroidism; (iii.) every instance of transient attacks of an established auricular fibrillation, when there is emaciation and pigmentation should be particularly suspected; (iv.) every patient in whose history there is a discrepancy between the condition and heart findings, should be regarded with suspicion. A persistently and truly elevated basal metabolic rate is essential to a positive diagnosis. Rapid heart rate is almost an essential accompaniment of high basal metabolism and should then be present with every diagnosis of hyper-thyroidism. Thyroid enlargement is rarely present to help the diagnosis. Tremor is often conspicuously absent. For those in an extreme state when coming for treatment, the emergency procedure has comprised the administration of large and repeated doses of morphine, venesection and oxygen administration. In addition all patients have had complete rest for at least three weeks and the administration of digitalis has been carefully

maintained. Then the patient is operated upon. The operation is the most rapid and complete sub-total thyroidectomy possible and it is fortunate that operations on these patients are easier to do than those on younger individuals with more toxic symptoms and with no complicating cardiac disorder or decompensation. The earlier operations of this series were performed under local anaesthesia, but the author tends now towards the use of gas and oxygen. He concludes that the effect of prolonged thyroid intoxication upon certain individuals is to produce auricular fibrillation and eventually true heart failure. Sub-total thyroidectomy in such instances relieves the failing heart of the burden which is making it fail, and results in complete relief of a complete disability. There is no comparable condition in which persistent heart failure is consistently and safely cured by surgical measures.

#### Renal Tuberculosis.

EDWARD STARR JUDD and ALBERT J. SCHOLL (*Annals of Surgery*, March, 1924) writing on the subject of the surgery of renal tuberculosis, remark on its fairly common occurrence and frequently fatal result. In a series of 5,338 necropsies they found that 2.9% of all deaths were due to this cause. It is primarily unilateral and the treatment is eventually surgical. It is very questionable whether healing ever takes place without operation. A patient may live with varying discomfort for a period of from ten to thirty years with the disease. With removal of the renal focus complete recovery takes place. Between 1894 and 1923, eight hundred and seventy-four patients with tuberculosis of the kidney have been treated surgically at the Mayo Clinic. Nephrectomy was performed in eight hundred and sixty-three instances and exploration only in nine. Of the patients 63.6% were men and 36.4% were women. In eighteen instances both kidneys were tuberculous. Usually complete lumbar nephrectomy was performed. In a few instances trans-peritoneal nephrectomy was performed or the peritoneal cavity was opened while the kidney was being removed by the lumbar route. Such contamination of the peritoneal cavity definitely increases the operative risk. In the presence of a perinephric abscess, removal of the kidney and drainage of the abscess at the same time increases the operative risk. Two of eight patients died following such procedures. None of the eight patients died on whom the two-stage operation was performed. In eighteen instances of bilateral infection one kidney was removed. Four of these patients died from anuria immediately after the operation and ten died during the succeeding eighteen months. Of the total eight hundred and forty-five who had unilateral nephrectomy performed, 2.7% died the first month after operation, 31.2% are dead (since 1894), 58.6% were completely cured at an average date of four years after operation and 10.1% are still having urinary trouble,



## British Medical Association News.

### SCIENTIFIC.

A MEETING OF THE NEW SOUTH WALES BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the B.M.A. Building, 30-34, Elizabeth Street, Sydney, on September 25, 1924, DR. ANDREW DAVIDSON, the President in the chair.

#### Duodenal Ulcer.

DR. SINCLAIR GILLIES read a paper entitled "The Medical Aspect of Duodenal Ulcer" (see page 591).

DR. J. L. McKELVEY read a paper entitled "The Surgical Aspect of Duodenal Ulcer" (see page 594).

DR. H. R. SEAR read a paper entitled "The X-Ray Aspect of Duodenal Ulcer." Dr. Sear illustrated his remarks by a series of lantern slides.

DR. R. B. P. MONSON read a paper entitled "The Present Position in the Diagnosis and Treatment of Chronic Gastric and Duodenal Ulcer" (see page 597).

PROFESSOR A. E. MILLS congratulated the four speakers on their contributions. He could agree with almost everything Dr. Gillies had said, but on one point he was at variance with him. He held that the main reason why gastric or duodenal ulcers did not heal was because they were for long periods bathed with an acid gastric juice. He believed that medical treatment should be aimed at neutralizing or diminishing the acid secretion of the stomach.

DR. GILLIES interposed that he did not aim at neutralization of the acid, but rather at the arrest of secretion and for that purpose he employed belladonna.

Professor Mills said that Dr. Gillies had more faith in small doses of belladonna (ten minims, given three times a day) than he had. He knew of no evidence to show that these doses would arrest the secretion, as Dr. Gillies maintained. Further, what was the object of giving an alkali combined with belladonna? Surely it could have only one result—the neutralization or the diminution of the acid of the gastric secretion. He maintained that alkalies should not be given once after each meal, but many times, so that the acid content of the gastric juice should be kept neutralized or kept at as low a level as possible. Nor did he think that distinctions should be made between the various kinds of meats. After all it was the protein content that was of importance and there was very little difference between the amount of protein in red meat and white meat.

Professor Mills thought that Dr. McKelvey's paper showed that he was possessed of sound judgement. As regards gastro-enterostomy, it could have only one effect, namely a more rapid emptying of the stomach. This would diminish the length of time during which the acid secretion would exert its ill-effects on the ulcer.

He could not agree with Dr. Monson when he advocated the excision of the acid-bearing portion of the stomach for the cure of gastric or duodenal ulcer. Such a method seemed to him ruthless and unnecessary. He could not accept the statement of Dr. Monson, based on the views expressed by Stoerck, that everyone had gastritis even the little infant of a few days old. He would like to know the evidence on which such views were based and what were the views held by the author as to the meaning of gastritis. Because one authority stated that gastritis was universally present, it did not follow that the statement should be accepted.

Professor Mills proceeded to discuss the question of abdominal rigidity in association with ulcer of the stomach and duodenum and indicated that it was an expression of plastic tonus, a reflex effect brought about by a stimulus arising at the site of the ulcer.

DR. MONSON called the speaker's attention to the fact that he had not dealt with spasticity at all.

Professor Mills accepted this statement and briefly dealt with the question of hyperæsthesia so often found associated with ulcers of the stomach and duodenum. With regard to the pain experienced by some patients in the

early morning before taking food, he held that this was due to another factor in addition to the ulcer.

He did not think Dr. Monson's statement, that vomiting did not give relief to the pain of ulcer, would be generally accepted. By vomiting the patient got rid of the acid secretion of the stomach and all the evidence favoured the view that this acid secretion was indirectly the cause of the pain.

DR. T. FIASCHI, D.S.O., said that after what he had heard that night he almost felt inclined to apologize for ever having done a gastro-jejunostomy. Surgeons got the patients left over by the physicians after a long period of unsuccessful treatment and it was surprising what relief the patients obtained after surgical operation. In discussing the question at the Auckland Congress in 1913 he had advocated the use of pylorotomy in conjunction with gastro-jejunostomy as the best course to avoid recurrence of ulceration and hæmorrhage. He was glad to hear from Dr. Monson that partial gastrectomy was being used. He had found that Pólya's operation was the most suitable form of surgical procedure, whenever the patient was sufficiently strong to bear it.

DR. F. ANTILL POCKLEY said that it might be asked what he, an ophthalmic surgeon, knew about duodenal ulcer. He maintained that he knew quite a lot, he had had a duodenal ulcer for fifteen years. He had experienced all the typical symptoms, hunger pain and so forth and diagnosis had been verified by X-rays. He took alkalies not regularly, but when he felt any need. He did not intend to submit to operation unless perforation occurred. He had had several hæmorrhages and one large one. One thing had worried him that evening. Dr. Monson had disturbed him in regard to the question of the occurrence of malignant disease with duodenal ulcer. He always understood that duodenal ulcer unlike gastric ulcer rarely became malignant. In regard to diet he ate and drank anything that he wished. He took soup with his lunch and dinner, not an ordinary small portion, but a respectable plate full. He smoked one pound of tobacco every three weeks and when he experienced any discomfort, he smoked a little more. In regard to the ætiology he felt that anxiety, worry and mental stress were contributing factors. It was certainly so in his case. A short holiday would often dispel symptoms. He found that a sea trip would often cut short an attack. For three years he had had no attack and he took alkali every day. A little practical personal experience was worth a lot of theory. He had often been urged to submit to operation, but he knew that symptoms very frequently recurred after operation and had been afraid of jejunal ulceration following.

DR. J. G. EDWARDS referred to Dr. McKelvey's remarks in regard to septic foci. He had been surprised to find what a number of dental foci were associated with duodenal ulcer. It had been said that duodenal ulcer came into vogue with the advent of American dentistry and its accompanying bridge work, crowns and so forth. He had noticed that patients often came back after gastro-enterostomy when the stoma had been made too high. He also referred to the condition found on operation which had been undertaken on a relative of his. A gastro-enterostomy had been performed and portion of the duodenum had been removed. Two healed ulcers had been found in the duodenum and in the mucosa Professor Welsh had discovered a tiny slit at the bottom of which a vessel had been eroded.

DR. ARCHIE ASPINALL said that he had at times been puzzled as to whether an ulcer was above or below the pylorus. He looked on gastro-enterostomy as an operation not to be undertaken lightly. It was his custom when sending patients suffering from duodenal ulcer to Sydney Hospital to request that they be placed in care of his corresponding physician, Dr. Leslie Dunlop. He saw the patient in consultation with Dr. Dunlop and only performed gastro-enterostomy if the latter recommended it.

DR. C. E. CORLETTE said that he wondered what was meant by the term ulcer. The name was applied to more than one lesion. There was a condition known as erosion and it was quite possible that the terms ulcer and erosion might represent stigmata which were essentially different. The majority of people would say that there was no dif-

ference, but it was quite possible that a difference existed. There was no satisfactory idea as to the causation of ulcer. Dr. Monson had offered something like an explanation, but the whole subject was still in a nebulous state. From what he could hear gastric and duodenal ulcers were more common in Germany than they used to be and this was held to be due to conditions of malnutrition which had existed during the war. It was true that in animals erosions were formed in malnutrition. McCarrison had referred to these in his book. Erosions were found in both duodenum and appendix and the reason was not known. Another question to be decided was the connexion between erosion and the innervation of the stomach and the duodenum. Dr. Pockley had said that the symptoms of ulceration were often associated with worry. Worry was also associated with poor nutrition. Treatment for ulceration had frequently consisted in long periods of poor nutrition and he suspected that malnutrition frequently had something to do with the causation of ulcer. It was possible that by treating patients with starvation methods they were being treated with "a hair of the dog that bit them." He had frequently had success in treating certain under-nourished patients with ulcer-like pains by forced feeding with milk.

Dr. E. M. HUMPHREY said that traces of healed ulcers were often seen without an accompanying history of symptoms. He referred to the fact that typhoid fever and dysentery were ulcerations due to infection. In these and ulcerative stomatitis spontaneous healing took place. Dr. Humphrey also mentioned Rammstedt's experimental production of infective ulcers and suggested that there might be an infective basis in duodenal ulcer. He thought that worry, by causing hurrying over food and insufficient food, might be a causative factor.

Dr. HOWARD BULLOCK said that he was indebted to the readers of the papers and to those who had taken part in the discussion. Both the papers and discussion had been mainly of an academic nature. He thought that practical experience should be brought more into the foreground. The physicians were at a disadvantage because they came so seldom to the operating theatre to see the surgeon at work and to the post mortem room to study those cases not treated surgically. They could thus glean their knowledge of what went on in the abdomen only from chemical examinations and the results of X-ray investigations which were more or less shadows, though valuable. The experienced surgeon after laparotomy often found it very difficult to determine whether an ulcer was present or not, and thus the physicians' knowledge in these cases must to a certain extent be open to question.

Dr. Bullock referred to his association with Walton and Snæren in London and drew a picture of the latter before the days of opaque meals, using a head mirror to inspect the interior of the stomach while searching for ulceration. He thought that any discussion on the treatment of duodenal ulcer would be incomplete if they did not take into account the pyloric portion of the stomach, as the fluid portion of the food passed quickly into the pyloric part of the stomach and thence to the duodenum where it was quickly and intimately mixed. This fact was borne out by X-rays and the same thing was seen in ruminant animals in which the fluids immediately after swallowing passed through the paunch by the *canalis gastricus* to the duodenum. He had very often found diagnosis of duodenal ulcer from pyloric ulcer and ulcer in the pyloric portion of the stomach impossible before operation, from signs and symptoms, chemical examination of stomach contents and the use of X-rays. Moynihan complained of the loose term "juxta-pyloric" that had crept into the literature and had been applied to ulcers in the region of the pylorus. In a series of forty-nine patients suffering from peritoneal rupture of ulcers operated on by him he had been able to distinguish only five definitely gastric ulcers and thirty duodenal. The remaining fourteen cases had been pyloric or within 0.6 centimetre of the pylorus. Two only of these cases had been fatal. Dr. Sear in his observations with X-rays had found the same difficulty in determining definitely the exact locality of many of these ulcers.

In a series of one hundred and thirty-one cases of chronic ulcer for which he had deliberately operated, there had been ninety-four instances of duodenal ulcer. Three of the

patients had recurrences after perforation, one being at quite a new situation on the posterior wall of the duodenum. There had been seventeen pyloric and twenty gastric ulcers and of these latter only eight had been in the body of the stomach, the remaining twelve being in the pyloric portion. In nearly all the cases pylorotomy or partial gastrectomy had been performed. The ages of the patients had ranged from nineteen years to sixty-six years and only three had died. Of the three deaths two had been those of patients with duodenal ulcer on the tenth and seventeenth days respectively and one patient had had a gastric ulcer which needed a very extensive resection. Only those with intractable dyspepsia or repeated hæmorrhages had been operated upon, drugs and dieting had in all cases been given a fair trial beforehand. The simpler cases cured themselves or were cured by the physicians. This experience with ruptured ulcers showed that not only did ulcers heal, but that in many cases they left no macroscopical trace of perforation, such as scarring of the peritoneum. The simpler plastic operations on the duodenum for ulcer so recently recommended at the Mayo Clinic would be impossible in the vast majority of patients operated on by him and after a trial of most methods he considered pylorotomy and posterior gastro-enterostomy (Billroth No. II.) most satisfactory for duodenal ulceration. After this procedure the patient was quite well in three weeks and soon able to resume any kind of work and this was a distinct advantage over the many forms of medical treatment in vogue. In the past eight years he had lost only one patient, a woman of sixty-two years, who had died on the seventeenth day from what the attending physician considered was myocarditis. She had been walking about for three days. He was struck with the frequency of multiple ulcers in the duodenum, three were often seen more especially round the pyloric sphincter. He agreed with Dr. Monson that the reports from some American clinics were deliberately misleading as each year some old method was resurrected and given a new name or some new procedure was adopted and the following year heartily condemned. The question of rigidity of the abdominal muscles in the presence of gastric and duodenal ulcers had been raised and in conclusion he would like to say that rigidity of the abdominal muscles in these conditions was met only when the peritoneal surface had been invaded and irritation set up and that he had operated upon many a gastric and duodenal ulcer when not even tenderness on deep pressure had been elicited.

Dr. H. C. RUTHERFORD DARLING expressed the opinion that the only generally accepted predisposing cause of chronic duodenal ulcer was hyperacidity but that recently there had been a tendency to bring in the para-sympathetic element into the ætiology of duodenal ulcer.

In duodenal ulcer the stomach was hypertonic and the contents were propelled into the duodenum with unusual speed, but though the stomach began to empty quickly, subsequent radiographic examination showed that emptying had not been completed in the normal time; pyloric spasm had supervened and it was at this stage that the characteristic pain appeared. No satisfactory explanation had been advanced as to why the patient should suffer from this characteristic pain.

In the next place he turned his attention to the site of election of the gastro-enterostomy opening. With the introduction of the posterior short-loop operation the opening had been made in the iso-peristaltic (left to right) direction; more or less recently the Mayos had reversed this.

After surgeons had introduced a vertical opening in line with the right edge of the œsophagus, Paterson had recommended that the anastomotic opening should be at least seven and a half centimetres.

Dr. Rutherford Darling, whilst agreeing that the lower end of the opening must reach the greater curvature, maintained that better results would be obtained when the opening extended upwards to the vicinity of the lesser curvature. This insured not only the greatest amount of neutralization of the stomach contents, but also secured division of the gastric terminations of the right vagus nerve. The French school, however, commonly adopted the small horizontal opening in the pyloric portion of the stomach.

Dr. DAVIDSON, the President, thanked the readers of the papers for their contributions and expressed his appreciation of the discussion which had taken place.

Dr. SINCLAIR GILLIES in reply said that when many forms of treatment were recommended for a disease it generally meant that none of them were really efficacious, that the disease was present in varying forms or that the disease was characterized by a tendency to spontaneous cure. According to Forsyth's statistics the tendency to recurrence was at least as great in those operated on as in those treated by medical means. The tendency to relapse in operated patients was not due to the more intractable nature of their conditions, as of the thirty-three patients submitted to operation twenty-three had been operated on after the first attack and in those twenty-three (39%) relapse had occurred.

In regard to pain and its causation, he had purposely avoided discussing the point as the question was too large and full of pitfalls to permit its discussion in the time allowed. There was very little evidence on which to base the various theories regarding the causation of ulcer. The evidence that infection of the appendix and oral sepsis had some causative connexion was slender. It was important, of course, to treat oral sepsis when it existed in a patient with signs of duodenal ulcer. It had been stated that appendicitis and hyperchlorhydria were associated. On the other hand it had been found that in 78% of persons operated upon for chronic appendicitis the gastric secretion was normal. The one outstanding fact was that hyperchlorhydria was almost invariably present in duodenal ulcer. After further discussing the alleged ætiological relations between appendicitis and duodenal ulcer, Dr. Gillies admitted that the causation of the latter condition was unknown. It was probable that in an appreciable number of cases mental states had a great deal to do with the production of hyperchlorhydria and all the symptoms of duodenal ulcer.

In reply to Dr. McKelvey's statement that duodenal ulcer was cured by gastro-enterostomy, Dr. Gillies suggested that it would probably be more correct to state that a large number of those patients recovered after operation. Moynihan had stated that it took from six months to three and a half years to cure inoperable duodenal ulcer; even a physician did not require this time to complete his treatment. Professor Mills had referred to the giving of alkali for the purpose of neutralizing the acid of the gastric secretion. While he agreed that this was important, he laid greater stress on attempting to diminish secretion. If one drop of a one in a thousand solution of atropine produced a local reaction in the eye, it was not difficult to see how belladonna even in small doses yielded a like local action in the stomach. When hyperchlorhydria was present this should be treated and bismuth and belladonna given as he had indicated. In regard to the claim that different forms of meat had the same effect on the secretion of the stomach, he recalled to Professor Mills's mind Pavlov's experiments on dogs in which he demonstrated that different forms of protein led to variation in the secretion reaction.

In conclusion Dr. Gillies was unable to agree with the suggestion that the operation of resection of the secretory area of the stomach for the treatment of gastric and duodenal ulcer was justified.

Dr. McKELVEY in reply said that he agreed with Dr. Bullock that many ulcers were so close to the pylorus that it was not obvious that they were of duodenal origin. Mayo's vein was taken as the line of demarcation. The difficulty was often due to the spread of the indurated edge which might be some distance beyond the ulcer. The ulcer was often a mere chink and was usually in the duodenum. Dr. Darling had raised the question of the direction of the gastro-jejunosomy and had stated that he preferred a vertical opening. It was possible that such an opening might derive advantage from the division of a branch of the vagus nerve and the consequent lessening of peristalsis. Pylorotomy and removal of the ulcer seemed to him to be too drastic.

Dr. MONSON in reply said he desired to thank Professor Mills for the very high compliment he had paid him that evening in subjecting him to the criticism he had made. It reminded him of the poignant remarks of his friend Sir Berkeley Moynihan after he had been severely criticised

at a medical meeting in London. He had said: "Monson, if you ever make a new statement to a meeting of medical men and find it unanimously approved, you can be certain that you are barking up the wrong tree." He could only repeat that in the present position of pathological knowledge of gastric ulcer, partial gastrectomy involving the whole of the acid-bearing portion of the stomach, was both scientifically and logically correct. In regard to his remarks on muscular rigidity in chronic ulcer, Dr. Monson had already denied that he stated it was not present. Professor Mills had expressed great surprise at his statement that hyperæsthesia was not present in chronic ulcers. He could only say that he was surprised that Professor Mills was not aware of this well known fact and of its simple pathological solution, namely that the fibrosis present in the chronic ulcer cut off the nerve endings and so destroyed the afferent nerve paths.

In regard to Professor Mills's criticism of his remarks about gastritis in infants and his questioning any cause for it in the newly born child, he would plead guilty to the use of the term gastritis. By it he meant an inflammation of the mucosa of the stomach and would call it mucositis, if Professor Mills preferred that, meaning in that case an acute inflammation caused by organisms and associated with the presence of lymphoid tissue between the gland tubules and shedding of some of the superficial epithelial cells as seen microscopically. The source of infection was generally a dirty nipple or teats in bottle-fed babies or again it might be part of the general thrush infection from which many newly born infants suffered.

Dr. Pockley had said that he (Dr. Monson) had differentiated between duodenal and gastric ulcer as regards the question of malignancy. As his time had been limited he had thought it unnecessary to mention such a well known fact. He did not think there were a dozen cases on record of duodenal ulcer having become malignant, but on the other hand nearly 30% of chronic gastric ulcers became malignant and this was surely another argument in favour of their treatment by partial gastrectomy.

Dr. Sear had stated that cure of chronic ulcers of the cardia as shown by radiograms, was by no means infallible as the barium might fail to lodge in the crater of the ulcer. It seemed to him that Dr. Sear was rather condemning his own work and that if his statement was correct, it accounted for his failure to find ulcers radiographically in many patients who had a definitely positive clinical history.

#### NOMINATIONS AND ELECTIONS.

THE undermentioned has been nominated for election as members of the New South Wales Branch of the British Medical Association:

FEATHERSTONE, FRANK REGINALD, L.R.C.P., 1901 (Edinburgh), L.R.C.S., 1901 (Edinburgh), L.F.P.S., 1901 (Glasgow), L.S.A., 1900 (London), Lady Davidson Home, Turramurra.

PONTON, RONALD GEORGE, M.B., Ch.M., 1923 (Univ. Sydney), c.o. Dr. John Malcolm, Lithgow.

RICKARD, RAYMOND VICTOR, M.B., 1924 (Univ. Sydney), Coopernook.

#### Correspondence.

##### AIR EMBOLISM AND SUDDEN DEATH.

SIR: In Dr. C. H. Mollison's paper, "The Forensic Pathology of Abortion," he states: "I do not believe that air embolism occurs in these cases" and Brouardel ("Death and Sudden Death") also ridicules the possibility of its occurring in abortion.

In the experience of Dr. A. A. Palmer and myself, extending over twenty years, we have come across several of these cases in which a syringe has been used and from which presumably the air has not been expelled before pumping was started. I have taken the following notes from the *post mortem* record dated February 1, 1921:

Reported to me at 4 p.m., a woman had died suddenly in the room of an irregular practitioner (a metaphysician)



at 1 p.m. Suspecting the cause of death, I took Dr. Sydney Jamieson with me to make the "post mortem." These notes were taken very carefully by Dr. Jamieson, as we knew that doubt had been cast on the possibility of air embolism, as a cause of death.

Mrs. B., aged twenty-seven years, quite healthy, from the country. On opening the chest cavity the heart was immediately examined *in situ* and the right ventricle was found distended with an intimate mixture of air and blood completely churned up together. Valves and vessels were quite healthy. Uterus contained a foetus of three and a half months' pregnancy. Uterus and placenta quite healthy; the placenta was slightly detached at its lower border and there was a small hæmorrhage (half-ounce of clot) outside the amniotic sac. No wound of uterine wall. The normal plug of mucus was absent and air bubbles were expressed from the uterine veins.

This is the case of a perfectly healthy woman who dies suddenly, is examined three and a half hours later. There is no doubt of what was done to her and there cannot be any question of gases of decomposition in this case.

Of course, I will admit that air "embolism" is an absurd term, but nevertheless her death is directly due to air getting into her heart.

We have several other cases in the records where syringes and douche cans have been used and sudden death has occurred.

I also note that Dr. Mollison states that peritonitis is by far the commonest mode of death.

Our experience in Sydney is that peritonitis is not the cause of death in one case in three. It is nearly always due to septicæmia without any sign of peritonitis.

STRATFORD SHELTON.

Sydney,  
(Undated).

## Proceedings of the Australian Medical Boards.

### NEW SOUTH WALES.

THE undermentioned have been registered under the provisions of the *Medical Act, 1912 and 1915*, as duly qualified medical practitioners:

BARNES, JACK, M.B., 1924 (Univ. Sydney), 22, Ocean Street, Double Bay.

BARRY, KEITH LEWIS, M.B., Ch.M., 1924 (Univ. Sydney), Campbell Street, Parramatta.

CRIBB, HAROLD BAYNES, M.B., 1924 (Univ. Sydney), Broughton Hall, Leichhardt.

GILLIES, GLADSTONE RUSSELL, M.B., Ch.M., 1924 (Univ. Sydney), Ulmarra, Clarence River.

GOLDBERG, SOLOMON, M.B., Ch.M., 1924 (Univ. Sydney), Kempsey.

GORMAN, ADRIAN PATRICK, M.B., B.S., 1924 (Univ. Melbourne), Oaklands, N.S.W.

HARRIS, CECIL WENTWORTH, M.B., Ch.M., 1924 (Univ. Sydney), 2, Woodbury Street, Marrickville.

KEIRLE, NORMAN ARTHUR DANIEL, M.B., Ch.M., 1924 (Univ. Sydney), England.

MCDONALD, ERIC EDWARD, M.B., Ch.M., 1924 (Univ. Sydney), 126, Holt Avenue, Cremorne.

PERDRIAU, OWEN, M.B., Ch.M., 1924 (Univ. Sydney), Nicholls Avenue, Haberfield.

SHALLARD, KENNETH BOULTON, M.B., Ch.M., 1924 (Univ. Sydney), 15, Northumberland Avenue, Stanmore.

SMITH, ALAN VICTOR, M.B., 1924 (Univ. Sydney), Crayness, Lower Cliff Road, Northwood.

STAYNER, FREDERICK EASTWOOD, M.B., Ch.M., 1924 (Univ. Sydney), Merla, Rowe Street, Eastwood.

TAYLOR, GEORGE CROWLEY, M.B., 1924 (Univ. Sydney), Woonona, Bayview Street, McMahon's Point.

THOMPSON, JOHN CYRIL, M.B., Ch.M., 1924 (Univ. Sydney), 45, Cox Avenue, Bondi.

VINE, JAMES MILLER, M.B., B.S., 1924 (Univ. Melbourne), Wilcannia.

WATKINS, ALFRED BASIL KEITH, L.R.C.P., 1919 (Lond.), M.B., B.S., 1919, M.S., 1922 (Univ. Lond.), F.R.C.S. 1922 (Eng.), s.s. *Orcades*.

### Registration of Additional Qualifications.

BAMBER, LEO, Ch.M., 1924 (Univ. Sydney).

COOKSON, HENRY GEORGE DOUGLAS, Ch.M., 1924 (Univ. Sydney).

FINLAY, CUTHBERT CLIVE, Ch.M., 1924 (Univ. Sydney).

### Change of Name.

EVANS, EDWARD FRANCIS, to EVANS, EDWARD FRANCIS HEPBURN.

### VICTORIA.

THE undermentioned have been registered, under the provisions of Part I., of the *Medical Act 1915*, as duly qualified medical practitioners:

BLADEN, BRYANT OSWALD, M.B., B.S., 1924 (Univ. Melbourne), 34, Balwyn Road, Canterbury.

LITTLE, JOHN PHILIP GREGORY, M.B., B.S., 1924 (Univ. Melbourne), Werribee.

SHANNON, HARRY, M.R.C.S. (England), L.R.C.P., 1921 (London), M.B., B.S., 1922 (London), D.P.H., 1923 (Oxford), c.o. Dr. L. Jona, Wattle-tree Road, Malvern.

### Additional Diploma Registered.

COLE, GEORGE EDWARD, D.P.H., 1921 (Univ. Melbourne).

### QUEENSLAND.

THE undermentioned have been registered, under the provisions of the *Medical Act of 1867*, as duly qualified medical practitioners:

BOLTON, GEORGE ADRIAN, M.B., Ch.M., 1924 (Univ. Sydney), Woolloowin, Brisbane.

FOWLES, DUNCAN, M.B., B.S., 1924 (Univ. Melbourne), New Farm, Brisbane.

GIBSON, WALTER LOCKHART, M.B., Ch.M., 1924 (Univ. Sydney), Brisbane.

JACKSON, ROBERT JAMES, M.B., Ch.M., 1924 (Univ. Sydney), Toowoomba.

O'CONNOR, NORMAN JOSEPH, M.B., B.S., 1924 (Univ. Melbourne), East Brisbane.

### Additional Qualification.

MAIN, JAMES NORMAN, Ch.M., 1924 (Univ. Sydney), Rockhampton.

### TASMANIA.

THE undermentioned have been registered, under the provision of the *Medical Act, 1918*, as duly qualified medical practitioners:

JONES, GEORGE ARTHUR, M.B., B.S., 1924 (Univ. Melbourne), Derby.

BRYAN, CLAUDE VIVIAN JOSEPH, M.B., B.S., 1924 (Univ. Melbourne), Hamilton.

## Medical Appointments.

DR. THOMAS GEORGE WILSON (B.M.A.) has been appointed by His Excellency the Governor of South Australia in Council, to be an Honorary Commissioner to inquire into and report upon the uses of radium in gynaecological work in Great Britain.

DR. FRANK HOWARD BEARE (B.M.A.) and DR. FRANK RAYMOND HONE (B.M.A.) have been appointed Honorary Assistant Physicians to the Infectious Diseases Block of the Adelaide Hospital.

DR. P. M. O'MEARA (B.M.A.) has been appointed Acting District Medical Officer and Public Vaccinator at Onslow, Derby and Port Hedland, Western Australia.

DR. JOHN DALE (B.M.A.) has been appointed Bacteriologist of the Advisory Committee (Food Standards), Perth, Western Australia.

THE undermentioned have been appointed Inspectors under Section 50 of the *Cattle Slaughtering and Diseased Animals and Meat Act, 1902*: DR. KENNETH ALFRED GOLLEDGE (B.M.A.), Government Medical Officer, Mudgee, New South Wales; DR. MICHAEL FRANCIS FITZSIMMONS (B.M.A.), Government Medical Officer, Condobolin, New South Wales; DR. ERIC WILFRED FRECKER (B.M.A.), Government Medical Officer, Kiama, New South Wales.

DR. HENRY VICTOR DAVID BARET (B.M.A.) has been appointed Deputy Medical Superintendent, Coast Hospital, Sydney.

DR. EDWARD JAMES BROOK: has been appointed Senior Medical Officer, Rookwood State Hospital and Asylum, New South Wales.

DR. DAVID THOMAS RUSHTON SMITH (B.M.A.) has been appointed Senior Medical Officer, Waterfall Sanatorium, New South Wales.

DR. LOTTIE SHARFSTEIN (B.M.A.) has been appointed Medical Officer, Newington State Hospital and Asylum, New South Wales.

DR. EMANUEL SYDNEY MORRIS has been appointed Senior Medical Officer of Health, Office of the Director-General of Public Health, New South Wales.

DR. R. W. CILENTO (B.M.A.) has been appointed Chief Quarantine Officer of the Territory of New Guinea.

### Books Received.

- A MANUAL OF DISEASES OF THE EYE, by Charles H. May, M.D. (New York), and Claud Worth, F.R.C.S. (England). Fifth Edition; 1924. London: Baillière, Tindall and Cox. Demy 8vo., pp. viii. + 460, with illustrations. Price: 15s. net.
- A TEXT-BOOK OF PHYSIOLOGY, by H. E. Roaf, M.D. (Toronto), D.Sc. (Liverpool), M.R.C.S., L.R.C.P.; 1924. London: Edward Arnold and Company. Royal 8vo., pp. viii. + 605, illustrated. Price: 25s. net.
- AIDS TO SURGERY, by Joseph Cunnings, M.B., B.S., F.R.C.S. (England), and Cecil A. Joll, M.S. (London), F.R.C.S. (England). Fifth Edition; 1924. London: Baillière, Tindall and Cox. Foolscap 8vo., pp. viii. + 534. Price: 4s. 6d. net.
- AN INTRODUCTION TO FORENSIC MEDICINE: FOR MEDICAL STUDENTS AND PRACTITIONERS, by H. A. Burridge, M.A., M.B. (Dublin); 1924. London: H. K. Lewis and Company, Limited. Crown 8vo., pp. xiv. + 455. Price: 10s. 6d. net.
- ANNALS OF THE "PICKETT-THOMSON" RESEARCH LABORATORY, issued by The "Pickett-Thomson" Research Laboratory, London; Volume I, 1924. Crown 4to., pp. 216. Price: 25s. net.
- ELEMENTARY ANATOMY AND PHYSIOLOGY FOR NURSES INCLUDING CHAPTERS ON PHYSIOLOGY, BIOLOGY, COMPARATIVE ANATOMY AND EMBRYOLOGY, by H. Clifford Barclay, M.D., Ch.B., M.R.C.S., L.R.C.P., F.R.C.S. (Edinburgh). Third Edition; 1924. London: Baillière, Tindall and Cox. Demy 8vo., pp. x. + 411, with illustrations. Price: 12s. net.
- FUNDAMENTALS OF HUMAN PHYSIOLOGY, by R. G. Pearce, B.A., M.D., and J. J. B. MacLeod, M.B., D.Sc., F.R.S.; assisted by Dr. Norman B. Taylor; Third Edition; 1924. St. Louis: The C. V. Mosby Company. Demy 8vo., pp. 349. Price: \$3.50 net.
- GREFFE ANIMALE: SES APPLICATIONS UTILITAIRES AU CHEPTEL, par le Dr. Serge Voronoff; 1924. Paris: Librairie Octave Doin; Gaston Doin, Éditeur. Crown 4to., pp. 100.

### Medical Appointments Vacant, etc..

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xvi.

BROKEN HILL AND DISTRICT HOSPITAL, NEW SOUTH WALES: Senior Resident Medical Officer.  
DEVON HOSPITAL, LATROBE, TASMANIA: House Surgeon.  
SAINT VINCENT'S HOSPITAL, MELBOURNE: Medical Clinical Assistants (3), Surgical Clinical Assistants (4).

### Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429, Strand, London, W.C..

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 30 - 34, Elizabeth Street, Sydney.	Australian Natives' Association, Ashfield and District Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham Dispensary. Manchester Unity Oddfellows' Medical Institute, Elizabeth Street, Sydney. Marrickville United Friendly Societies' Dispensary. North Sydney United Friendly Societies. People's Prudential Benefit Society. Phoenix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association. Proprietary, Limited. Mutual National Provident Club. National Provident Association.
QUEENSLAND: Honorary Secretary, B. M. A. Building, Adelaide Street, Brisbane.	Brisbane United Friendly Society Institute. Stannary Hills Hospital.
SOUTH AUSTRALIAN: Honorary Secretary, 12, North Terrace, Adelaide.	Contract Practice Appointments at Renmark. Contract Practice Appointments in South Australia.
WESTERN AUSTRALIAN: Honorary Secretary, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
NEW ZEALAND (WELLINGTON DIVISION): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

### Diary for the Month.

- DEC. 9.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
- DEC. 10.—Tasmanian Branch, B.M.A.: Branch.
- DEC. 10.—South Sydney Medical Association, New South Wales.
- DEC. 10.—Central Northern Medical Association, New South Wales.
- DEC. 10.—Melbourne Pediatric Society.
- DEC. 11.—New South Wales Branch, B.M.A.: Branch.
- DEC. 11.—Victorian Branch, B.M.A.: Council.
- DEC. 11.—South Australian Branch, B.M.A.: Council.
- DEC. 11.—Brisbane Hospital for Sick Children: Clinical Meeting.
- DEC. 12.—Queensland Branch, B.M.A.: Annual General Meeting.
- DEC. 16.—New South Wales Branch, B.M.A.: Medical Politics Committee, Organization and Science Committee.
- DEC. 24.—Victorian Branch, B.M.A.: Council.
- DEC. 26.—Queensland Branch, B.M.A.: Council.
- 1925.
- JAN. 8.—New South Wales Branch, B.M.A.: Council (Quarterly).
- JAN. 10.—Queensland Branch, B.M.A.: Council.
- JAN. 10.—South Australian Branch, B.M.A.: Council.
- JAN. 13.—New South Wales Branch, B.M.A.: Ethics Committee.
- JAN. 14.—Tasmanian Branch, B.M.A.: Branch.
- JAN. 20.—New South Wales Branch, B.M.A.: Executive and Finance Committee.

### Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

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